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FOREWORD

The **International Bulletin on Atomic and Molecular Data for Fusion** (“the Bulletin”) is prepared by the Atomic and Molecular (A+M) Data Unit of the **International Atomic Energy Agency** (IAEA) and published and distributed free of charge by the IAEA to assist in the development of fusion research and technology. The Bulletin is a complement to the A+M Data Unit bibliographical database, AMBDAS, which is freely available on-line at <http://www-amdis.iaea.org/AMBDAS/>. Each issue of the Bulletin contains additions to AMBDAS since the previous issue.

The Bulletin and AMBDAS provide an indexed guide to papers that contain data for atomic structure, spectral lines and intensities (or transition probabilities), atomic and molecular collisions and particle-surface interactions. In recent years the references and indices included in the Bulletin have been provided by atomic data centres at two institutes: Oak Ridge National Laboratory, Oak Ridge, USA, for atomic and molecular collisions and particle-surface interactions, and the National Institute of Standards and Technology (NIST), Gaithersburg, USA, for structure and spectra. However, the present edition of the Bulletin contains only data on atomic structure, spectra and transition probabilities. These data were provided by NIST and cover mainly publications that appeared in the years 2010-2012. The editors wish to resume publication of collision data and particle-surface interaction data in the future.

Information in this Bulletin is presented in four chapters. The Atomic and Molecular Data Information System (AMDIS) of the International Atomic Energy Agency is briefly presented in Chapter 1. The indexed papers are listed separately for structure and spectra, atomic and molecular collisions, and particle-surface interactions in Part 2. The structure and spectra index lines are grouped by process. The first column gives the reactants, the second one the process and then the character of the data contained (Th for theoretical, Ex for experimental, and E/T for both experimental and theoretical). The number in the last column is the reference number in Part 3 of the Bulletin. The atomic and molecular index lines are grouped by one collision partner (photon, electron or heavy particle). The first column gives the reactants, the second column gives the process, the third column gives the energy range with the appropriate units, and the last two columns are the same as in the structure and spectra index lines. The particle-surface interactions index lines are grouped by process. The first column gives the reactants, the second the energy range with the appropriate units, and the last two columns are the same as in the previous cases. Part 3 contains the bibliographic data for both the indexed and non-indexed references. Under each entry in Part 3 index lines (if any) refer back to the classified entries in Part 2. Part 4 contains the Author Index with references to the bibliographic entries contained in Part 3.

Contributions are solicited on data generation work in progress and on new data in the course of publication. Contributions should include an explanation of their applicability to fusion research and should be sent to:

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NEWS ON THE ATOMIC AND MOLECULAR DATA UNIT

Coordinated Research Projects (CRP) are the main tool by which the Atomic and Molecular Data Unit collects and evaluates data for the establishment of recommended numerical databases for use in fusion energy research. A CRP is a three to five-year joint project involving approximately 7 to 12 laboratories, research teams or institutes performing coordinated research to achieve a well defined goal (establishment of a particular database, data generation, compilation and assessment for specific types of A+M collision processes, or classes of such processes, etc.). Two CRPs have recently concluded. The CRP on “Data for surface composition dynamics relevant to erosion processes” held its third and final Research Coordination Meeting (RCM) in September 2010 and the CRP on “Characterization of Size, Composition and Origins of Dust in Fusion Devices” held its second RCM in June 2010 and the final one in December 2011. The CRP on “Spectroscopic and Collisional Data for Tungsten from 1 eV to 20 keV” held the first and the second RCMs in December 2010 and August 2012, respectively. The CRP on “Light Element Atom, Molecule and Radical Behaviour in the Divertor and Edge Plasma Regions” held its second RCM in May 2011. The CRP on “Atomic and Molecular Data for State-Resolved Modelling of Hydrogen and Helium and Their Isotopes in Fusion Plasma” held its first RCM in August 2011 and the CRP on “Data for Erosion and Tritium Retention in Beryllium Plasma-Facing Materials” held the first RCM in September 2012. More information about the CRPs is available on the A+M Data Unit web site at <http://www-amdis.iaea.org/CRP/>.

The 21st meeting of the Data Centre Network on Technical Aspects of Atomic and Molecular Data Processing and Exchange was held on 7-9 September 2011. The Data Centre Network (DCN) includes about 12 national data centres for collection, critical assessment (evaluation) and partly for generation of atomic and molecular (A+M), particle surface interaction (PSI) and bulk material properties data for fusion and other applications. More information on the DCN activities is available on the A+M Data Unit web site at <http://www-amdis.iaea.org/DCN/>.

Upon the recommendations of the Data Centre Network, the A+M Data Unit organized a series of meetings to address the needs of critical assessment of atomic, molecular and particle-surface interaction data. To encourage broad collaboration and involvement from atomic and molecular physics community internationally on the issue of data evaluation, meetings were held at the National Institute for Fusion Science (NIFS, Toki) in Japan and the National Fusion Research Institute (NFRI, Daejeon) in Korea. More than 25 experts from 10 member states participated in discussions on critical aspects of data evaluation procedures at the joint IAEA-NFRI Technical Meeting on “Data Evaluation for Atomic, Molecular and Plasma Material Interaction Processes in Fusion” and a proceeding book will be published in early 2013. More information on the data evaluation activities is available on the A+M Data Unit web site at <http://www-amdis.iaea.org/DCN/Evaluation>.

Version 1.0 of the “XML Schema for Atoms, Molecules and Solids” (XSAMS) was specified in 2012 by the XSAMS Steering Committee in collaboration with the Virtual Atomic and Molecular Data Centre (VAMDC, <http://www.vamdc.eu>). The goal of the XSAMS project is to develop an XML-based standard for exchange of atomic, molecular and particle-surface interaction data through which both the static properties of the AM/PSI constituents and the interactions among them are described in a consistent and well-structured way. The work started in the A+M Data Unit in collaboration with NIST, ORNL and Observatoire Paris-Meudon. Since 2009, the work has expanded greatly due to the adoption and further development of XSAMS by the VAMDC Consortium, which has supported many implementations and associated database infrastructure. More information is posted on the A+M Data Unit web site at <http://www-amdis.iaea.org/XML/>

A wiki-style knowledge base on atomic, molecular and plasma-surface interaction data for fusion is being developed. The aim is to provide basic facts and background information for both atomic, molecular, plasma-surface interaction data producer communities and the fusion data user community. Contents from the IAEA publications, technical reports and meeting presentations are presented. The knowledge base is available on the A+M Data Unit web site at <http://www-amdis.iaea.org/w/>

The A+M Data Unit organized a joint ICTP-IAEA workshop on “Fusion Plasma Modelling Using Atomic and Molecular Data” on 23-27 January, 2012 at ICTP in Trieste, Italy. The purpose of the workshop is to train potential new researchers in fusion energy in the basics of atomic, molecular and plasma-material interaction data. Additional information may be found on the A+M Data Unit web site at <http://www-amdis.iaea.org/Workshops/ICTP2012/>.

The A+M Data Unit cooperated to host the 7th Non-Local Thermodynamic Equilibrium (NLTE) Code Comparison Workshop on 5-9 December, 2011 and the 1st Spectral Line Shapes in Plasmas (SLSP) Code Comparison Workshop on 2-5 April, 2012 in Vienna. The workshops invited developers of NLTE kinetics codes and SLSP codes to compare results and understand physics assumptions behind differences among codes. More details may be found on the workshop web pages at <http://nlte.nist.gov/NLTE7/> and <http://plasma-gate.weizmann.ac.il/slsp/>.

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CHAPTER 1

THE ATOMIC AND MOLECULAR DATA INFORMATION SYSTEM

AMDIS is the **A**tomic and **M**olecular **D**ata **I**nformation **S**ystem of the International Atomic Energy Agency, established and maintained by the Atomic and Molecular Data Unit, Nuclear Data Section. AMDIS contains two main parts: **AMBDAS**, a bibliographic database for atomic and molecular data for fusion research; **ALADDIN**, a numerical database of recommended and evaluated atomic, molecular and plasma-surface interaction data.

AMBDAS, **A**tomic and **M**olecular **B**ibliographic **D**ata **S**ystem, is an on-line bibliographic database <http://www-amdis.iaea.org/AMBDAS> that contains more than 47,000 bibliographic entries with atomic, molecular and plasma-surface interaction data of interest to fusion research, and dating back to 1918. Entries may be retrieved by author, process, reactants, type of reference, year of publication and data source (theoretical or experimental). The interface is a web-based application, easy to use with no required registration. **AMBDAS** data are regularly published in the International Bulletin on Atomic and Molecular Data for Fusion.

ALADDIN is the online numerical database of the Atomic and Molecular Data Unit of the IAEA <http://www-amdis.iaea.org/ALADDIN>, providing atomic, molecular and plasma-material interaction data of interest to fusion research. **ALADDIN** provides two similar interfaces, one for collisional data and one for particle surface interactions. An **ALADDIN** entry consists of searchable labels that characterize the process and reactants; the source of the data, date, laboratory or data centre, and reference; comment lines and the numerical data. When possible all requested data are displayed in the same units to permit easy comparison. A unit conversion tool is available and all results can be displayed in tabular and graphical mode.

CHAPTER 2

PROCESS INDEX

2.1 Structure and Spectra

	Energy Levels, Wavelengths	Th	402
H-Li	Energy Levels, Wavelengths	Th	7
H	Energy Levels, Wavelengths	Exp	20
H	Energy Levels, Wavelengths	E/T	27
H	Energy Levels, Wavelengths	Th	28
H⁻	Energy Levels, Wavelengths	Th	54
H-Ne	Energy Levels, Wavelengths	Th	54
H	Energy Levels, Wavelengths	Th	83
H	Energy Levels, Wavelengths	Exp	155
H	Energy Levels, Wavelengths	E/T	170
H	Energy Levels, Wavelengths	Th	171
H	Energy Levels, Wavelengths	E/T	172
H	Trans. prob., Oscill. Strengths	Th	215
H	Energy Levels, Wavelengths	Th	334
H	Energy Levels, Wavelengths	Exp	462
H	Energy Levels, Wavelengths	Exp	477
H	Energy Levels, Wavelengths	Exp	478
H	Energy Levels, Wavelengths	Exp	479
H	Energy Levels, Wavelengths	Exp	483
H	Trans. prob., Oscill. Strengths	Th	551
H	Trans. prob., Oscill. Strengths	Th	577
H	Trans. prob., Oscill. Strengths	Th	579
H	Energy Levels, Wavelengths	Th	688
H⁻	Energy Levels, Wavelengths	Th	749
He	Energy Levels, Wavelengths	E/T	16
He	Energy Levels, Wavelengths	Th	28
He	Energy Levels, Wavelengths	Th	41
He⁺	Energy Levels, Wavelengths	Exp	110
He	Energy Levels, Wavelengths	E/T	144
He⁻	Energy Levels, Wavelengths	Th	164
He	Energy Levels, Wavelengths	Exp	168
He⁺	Energy Levels, Wavelengths	E/T	170
He	Energy Levels, Wavelengths	E/T	172
He⁺	Energy Levels, Wavelengths	E/T	172
He	Trans. prob., Oscill. Strengths	Th	215
He	Energy Levels, Wavelengths	Th	390
He	Energy Levels, Wavelengths	Th	402
He	Energy Levels, Wavelengths	Th	411
He	Energy Levels, Wavelengths	Th	428
He	Energy Levels, Wavelengths	Th	447
He	Energy Levels, Wavelengths	Exp	462
He⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	463
He⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	469
He⁺	Energy Levels, Wavelengths	Exp	476
He⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	479
He	Trans. prob., Oscill. Strengths	Th	539
He-No	Energy Levels, Wavelengths	E/T	608
He	Energy Levels, Wavelengths	Exp	695
He⁻	Energy Levels, Wavelengths	Th	749
He	Energy Levels, Wavelengths	Th	749

He	Energy Levels, Wavelengths	E/T	774
He	Trans. prob., Oscill. Strengths	E/T	830
Li	Energy Levels, Wavelengths	Exp	24
Li	Energy Levels, Wavelengths	Th	28
Li	Energy Levels, Wavelengths	Exp	34
Li	Energy Levels, Wavelengths	Th	39
Li	Energy Levels, Wavelengths	Th	45
Li	Energy Levels, Wavelengths	Th	47
Li	Energy Levels, Wavelengths	Exp	51
Li-F⁻	Energy Levels, Wavelengths	Th	54
Li	Energy Levels, Wavelengths	Th	68
Li²⁺	Energy Levels, Wavelengths	Th	83
Li	Energy Levels, Wavelengths	Exp	123
Li	Energy Levels, Wavelengths	Exp	124
Li	Energy Levels, Wavelengths	Th	132
Li	Energy Levels, Wavelengths	E/T	144
Li⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	144
Li	Energy Levels, Wavelengths	Exp	145
Li⁺	Energy Levels, Wavelengths	Exp	145
Li	Energy Levels, Wavelengths	Th	157
Li	Energy Levels, Wavelengths	Th	164
Li⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Li	Energy Levels, Wavelengths	E/T	172
Li-Am	Energy Levels, Wavelengths	E/T	173
Li-Am	Energy Levels, Wavelengths	Exp	174
Li-Am	Energy Levels, Wavelengths	Exp	175
Li	Trans. prob., Oscill. Strengths	Th	259
Li	Energy Levels, Wavelengths	E/T	291
Li	Energy Levels, Wavelengths	Th	292
Li	Energy Levels, Wavelengths	Exp	300
Li⁺	Energy Levels, Wavelengths	Th	316
Li	Energy Levels, Wavelengths	Exp	317
Li	Energy Levels, Wavelengths	Exp	323
Li⁻	Energy Levels, Wavelengths	Th	333
Li	Energy Levels, Wavelengths	E/T	345
Li	Energy Levels, Wavelengths	Th	360
Li	Energy Levels, Wavelengths	Th	401
Li	Energy Levels, Wavelengths	Th	402
Li⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th	411
Li	Energy Levels, Wavelengths	Th	413
Li⁺	Energy Levels, Wavelengths	Th	413
Li	Energy Levels, Wavelengths	Th	425
Li⁺	Energy Levels, Wavelengths	Th	428
Li	Energy Levels, Wavelengths	Exp	434
Li⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th	451
Li	Energy Levels, Wavelengths	Th	466
Li	Energy Levels, Wavelengths	Th	471
Li⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th	471
Li	Energy Levels, Wavelengths	Th	494
Li	Energy Levels, Wavelengths	Exp	502
Li	Energy Levels, Wavelengths	E/T	507
Li⁺	Energy Levels, Wavelengths	E/T	507
Li	Energy Levels, Wavelengths	Th	605
Li	Energy Levels, Wavelengths	Exp	645
Li	Energy Levels, Wavelengths	Th	662
Li	Energy Levels, Wavelengths	Th	663
Li	Energy Levels, Wavelengths	Th	715
Li	Energy Levels, Wavelengths	Th	720
Li	Energy Levels, Wavelengths	Th	745

Li	Energy Levels, Wavelengths	Th	749
Li⁺	Energy Levels, Wavelengths	Th	749
Li⁺	Energy Levels, Wavelengths	E/T	774
Li-Ar	Trans. prob., Oscill. Strengths	Th	777
Li	Trans. prob., Oscill. Strengths	Th	814
Li	Trans. prob., Oscill. Strengths	Th	822
Li	Trans. prob., Oscill. Strengths	Th	834
Li	Trans. prob., Oscill. Strengths	Exp	847
Be	Energy Levels, Wavelengths	Th	28
Be⁺	Energy Levels, Wavelengths	Th	47
Be⁺	Energy Levels, Wavelengths	Exp	123
Be⁺	Energy Levels, Wavelengths	Th	130
Be	Energy Levels, Wavelengths	Th	139
Be⁻	Energy Levels, Wavelengths	Th	158
Be	Energy Levels, Wavelengths	Exp	168
Be⁺	Energy Levels, Wavelengths	Exp	168
Be⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Be	Energy Levels, Wavelengths	E/T	172
Be⁺	Energy Levels, Wavelengths	E/T	172
Be⁰⁺⁻²⁺	Trans. prob., Oscill. Strengths	E/T	231
Be⁺	Energy Levels, Wavelengths	Th	292
Be²⁺	Energy Levels, Wavelengths	Th	316
Be⁺	Energy Levels, Wavelengths	Exp	328
Be	Energy Levels, Wavelengths	Th	338
Be	Energy Levels, Wavelengths	Th	352
Be	Energy Levels, Wavelengths	Th	390
Be	Energy Levels, Wavelengths	Th	402
Be⁺	Energy Levels, Wavelengths	Th	411
Be⁺	Energy Levels, Wavelengths	Exp	430
Be⁺	Energy Levels, Wavelengths	Exp	437
Be	Energy Levels, Wavelengths	Th	451
Be²⁺	Energy Levels, Wavelengths	Th	451
Be⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	507
Be⁺	Energy Levels, Wavelengths	Th	662
Be	Trans. prob., Oscill. Strengths	E/T	797
Be⁺	Trans. prob., Oscill. Strengths	Th	834
B²⁺	Energy Levels, Wavelengths	E/T	81
B³⁺	Energy Levels, Wavelengths	Exp	107
B⁴⁺	Energy Levels, Wavelengths	Exp	107
B	Energy Levels, Wavelengths	Exp	168
B^{+ -2+}	Energy Levels, Wavelengths	E/T	170
B	Energy Levels, Wavelengths	E/T	172
B⁰⁺⁻³⁺	Trans. prob., Oscill. Strengths	E/T	231
B^{+ -2+}	Energy Levels, Wavelengths	Exp	307
B⁴⁺	Energy Levels, Wavelengths	Exp	307
B³⁺	Energy Levels, Wavelengths	Th	316
B	Energy Levels, Wavelengths	Th	402
B²⁺	Energy Levels, Wavelengths	Th	411
B^{+ -3+}	Energy Levels, Wavelengths	E/T	507
B⁺	Energy Levels, Wavelengths	Th	610
B-F	Energy Levels, Wavelengths	Th	656
B⁻	Energy Levels, Wavelengths	Th	670
B⁴⁺	Energy Levels, Wavelengths	Exp	731
B⁺	Trans. prob., Oscill. Strengths	Th	790
B^{+ -2+}	Trans. prob., Oscill. Strengths	Th	813
B	Trans. prob., Oscill. Strengths	Th	817
C⁺	Energy Levels, Wavelengths	Th	1
C	Energy Levels, Wavelengths	Exp	20
C²⁺	Energy Levels, Wavelengths	Th	38

C^{2+}	Energy Levels, Wavelengths	Exp	74
C^{5+}	Energy Levels, Wavelengths	Th	83
C^{3+}	Energy Levels, Wavelengths	Exp	140
C^{5+}	Energy Levels, Wavelengths	Exp	146
C^{0+-3+}	Energy Levels, Wavelengths	E/T	170
C^{0+-3+}	Energy Levels, Wavelengths	E/T	172
C^+	Trans. prob., Oscill. Strengths	Th	197
C^{2+}	Trans. prob., Oscill. Strengths	Th	234
C^+	Energy Levels, Wavelengths	Exp	282
C^+	Energy Levels, Wavelengths	E/T	290
C^{+-2+}	Energy Levels, Wavelengths	Exp	307
C^{4+}	Energy Levels, Wavelengths	Th	316
$^{11}C^-$	Energy Levels, Wavelengths	Th	331
$^{13}C^-$	Energy Levels, Wavelengths	Th	331
C^-	Energy Levels, Wavelengths	Th	331
C	Energy Levels, Wavelengths	Th	331
C^{3+}	Energy Levels, Wavelengths	Th	336
C^{4+}	Energy Levels, Wavelengths	Th	365
C^{3+}	Energy Levels, Wavelengths	Th	411
C^{2+}	Energy Levels, Wavelengths	Exp	454
C^{4+-5+}	Energy Levels, Wavelengths	Exp	455
C^{3+-5+}	Energy Levels, Wavelengths	Exp	456
C^{4+-5+}	Energy Levels, Wavelengths	Exp	459
C^{4+-5+}	Energy Levels, Wavelengths	E/T	460
C	Energy Levels, Wavelengths	Exp	462
C^{2+}	Energy Levels, Wavelengths	Exp	469
C^{3+}	Energy Levels, Wavelengths	Exp	476
C^{+-4+}	Energy Levels, Wavelengths	Exp	479
C	Energy Levels, Wavelengths	Exp	483
C^{2+-4+}	Energy Levels, Wavelengths	E/T	507
C^-	Trans. prob., Oscill. Strengths	Th	537
C	Trans. prob., Oscill. Strengths	Th	537
C^{4+}	Trans. prob., Oscill. Strengths	Th	575
C^{5+}	Energy Levels, Wavelengths	Th	617
C^{4+}	Energy Levels, Wavelengths	Th	647
C^{4+}	Energy Levels, Wavelengths	Th	660
C^{3+}	Energy Levels, Wavelengths	Th	662
C^-	Energy Levels, Wavelengths	Th	670
C^{5+}	Energy Levels, Wavelengths	Th	688
C^{2+}	Energy Levels, Wavelengths	Exp	695
C^+	Energy Levels, Wavelengths	Th	702
C^{5+}	Energy Levels, Wavelengths	Exp	731
C^{2+}	Energy Levels, Wavelengths	Th	740
C^{4+}	Energy Levels, Wavelengths	Th	744
C^{4+}	Energy Levels, Wavelengths	Th	753
C	Energy Levels, Wavelengths	Exp	755
C^{+-3+}	Energy Levels, Wavelengths	Exp	772
C^{4+-5+}	Energy Levels, Wavelengths	Exp	773
C^{3+}	Trans. prob., Oscill. Strengths	Th	822
C^{4+}	Trans. prob., Oscill. Strengths	Th	824
C^{3+}	Trans. prob., Oscill. Strengths	Th	834
C^{4+}	Trans. prob., Oscill. Strengths	Th	876
N^{2+}	Energy Levels, Wavelengths	Th	1
N^{4+}	Energy Levels, Wavelengths	Th	21
N	Energy Levels, Wavelengths	E/T	65
N^{3+}	Energy Levels, Wavelengths	Exp	74
N	Energy Levels, Wavelengths	Th	82
N^+	Energy Levels, Wavelengths	Th	88
N^{3+}	Energy Levels, Wavelengths	Exp	95

N^+	Energy Levels, Wavelengths	Th	101
N^{0+-6+}	Energy Levels, Wavelengths	Th	117
N	Energy Levels, Wavelengths	Exp	168
N^+	Energy Levels, Wavelengths	Exp	168
N^{0+-3+}	Energy Levels, Wavelengths	E/T	170
N^{0+-4+}	Energy Levels, Wavelengths	E/T	172
N^{4+}	Trans. prob., Oscill. Strengths	Th	193
N^{2+}	Trans. prob., Oscill. Strengths	Th	197
N	Trans. prob., Oscill. Strengths	Exp	202
N^{4+}	Trans. prob., Oscill. Strengths	Th	207
N	Trans. prob., Oscill. Strengths	Exp	209
N^+	Trans. prob., Oscill. Strengths	Th	225
N^+	Trans. prob., Oscill. Strengths	Th	232
N^{3+}	Trans. prob., Oscill. Strengths	Th	234
N^{0+-6+}	Trans. prob., Oscill. Strengths	Th	242
N^{5+}	Trans. prob., Oscill. Strengths	Th	250
N^{+-2+}	Energy Levels, Wavelengths	Exp	282
N^{+-3+}	Energy Levels, Wavelengths	Exp	282
N^+	Energy Levels, Wavelengths	Exp	298
N^{+-2+}	Energy Levels, Wavelengths	Exp	307
N^{5+}	Energy Levels, Wavelengths	Th	316
N^+	Energy Levels, Wavelengths	E/T	363
N^{4+}	Energy Levels, Wavelengths	Exp	454
N^{4+-6+}	Energy Levels, Wavelengths	Exp	455
N^{4+-6+}	Energy Levels, Wavelengths	Exp	456
N^{5+-6+}	Energy Levels, Wavelengths	Exp	459
N^{5+-6+}	Energy Levels, Wavelengths	E/T	460
N^{4+}	Energy Levels, Wavelengths	Exp	477
N^{4+}	Energy Levels, Wavelengths	Exp	478
N^{0+-4+}	Energy Levels, Wavelengths	Exp	479
N^{6+}	Energy Levels, Wavelengths	Th	485
N	Energy Levels, Wavelengths	Th	495
N^{3+}	Trans. prob., Oscill. Strengths	E/T	531
N^+	Trans. prob., Oscill. Strengths	Th	544
N^{6+}	Trans. prob., Oscill. Strengths	Th	573
N^+	Trans. prob., Oscill. Strengths	Exp	580
N^{3+}	Energy Levels, Wavelengths	Th	668
N^-	Energy Levels, Wavelengths	Th	670
N^{2+}	Energy Levels, Wavelengths	Exp	695
N^{0+-2+}	Energy Levels, Wavelengths	Exp	772
O^{3+}	Energy Levels, Wavelengths	Th	1
O^{6+}	Energy Levels, Wavelengths	E/T	16
O^-	Energy Levels, Wavelengths	Th	36
O^{4+}	Energy Levels, Wavelengths	Exp	74
O^{2+}	Energy Levels, Wavelengths	Th	88
O^{4+}	Energy Levels, Wavelengths	Th	100
O^{3+-5+}	Energy Levels, Wavelengths	Exp	110
O^{2+-5+}	Energy Levels, Wavelengths	Exp	116
O^{7+}	Energy Levels, Wavelengths	Exp	146
O^{3+}	Energy Levels, Wavelengths	E/T	165
O^{4+}	Energy Levels, Wavelengths	E/T	167
O	Energy Levels, Wavelengths	Exp	168
O^{0+-5+}	Energy Levels, Wavelengths	E/T	170
O^{0+-5+}	Energy Levels, Wavelengths	E/T	172
O^+	Trans. prob., Oscill. Strengths	Th	194
O^{3+}	Trans. prob., Oscill. Strengths	Th	197
O^{2+}	Trans. prob., Oscill. Strengths	Th	225
O	Trans. prob., Oscill. Strengths	Exp	245
O^{5+}	Trans. prob., Oscill. Strengths	Th	253

O⁺	Energy Levels, Wavelengths	Exp	282
O³⁺	Energy Levels, Wavelengths	Exp	282
O³⁺⁻⁴⁺	Energy Levels, Wavelengths	Exp	282
O⁷⁺	Energy Levels, Wavelengths	Exp	297
O⁺³⁺	Energy Levels, Wavelengths	Exp	307
O⁶⁺	Energy Levels, Wavelengths	Th	316
O⁻	Energy Levels, Wavelengths	Exp	337
O⁴⁺	Energy Levels, Wavelengths	Th	410
O	Energy Levels, Wavelengths	Exp	427
O	Energy Levels, Wavelengths	Exp	431
O⁺	Energy Levels, Wavelengths	Exp	440
O⁵⁺	Energy Levels, Wavelengths	Exp	454
O⁴⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	455
O⁵⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	456
O⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	459
O⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	E/T	460
O⁵⁺	Energy Levels, Wavelengths	Exp	464
O⁺⁴⁺	Energy Levels, Wavelengths	Exp	469
O⁴⁺	Energy Levels, Wavelengths	E/T	472
O⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	476
O⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	477
O⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	478
O⁰⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	479
O²⁺	Energy Levels, Wavelengths	Exp	482
O	Energy Levels, Wavelengths	Th	495
O⁵⁺	Energy Levels, Wavelengths	Exp	498
O⁴⁺⁻⁶⁺	Energy Levels, Wavelengths	E/T	507
O²⁺	Trans. prob., Oscill. Strengths	Th	510
O	Trans. prob., Oscill. Strengths	Th	564
O⁷⁺	Trans. prob., Oscill. Strengths	Th	573
O⁵⁺	Energy Levels, Wavelengths	Exp	588
O⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	595
O⁵⁺	Energy Levels, Wavelengths	Th	662
O⁻	Energy Levels, Wavelengths	Th	670
O⁺⁴⁺	Energy Levels, Wavelengths	Exp	695
O⁷⁺	Energy Levels, Wavelengths	Exp	731
O⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	775
O⁺	Trans. prob., Oscill. Strengths	Th	820
O⁵⁺	Trans. prob., Oscill. Strengths	Th	834
O⁵⁺	Trans. prob., Oscill. Strengths	Th	872
F⁶⁺	Energy Levels, Wavelengths	Th	21
F³⁺	Energy Levels, Wavelengths	Th	88
F	Energy Levels, Wavelengths	Exp	168
F⁺	Energy Levels, Wavelengths	Exp	168
F⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	170
F⁶⁺	Trans. prob., Oscill. Strengths	Th	193
F⁶⁺	Trans. prob., Oscill. Strengths	Th	207
F³⁺	Trans. prob., Oscill. Strengths	Th	225
F⁵⁺	Trans. prob., Oscill. Strengths	Th	234
F⁷⁺	Trans. prob., Oscill. Strengths	Th	250
F⁺²⁺	Energy Levels, Wavelengths	Exp	307
F⁷⁺	Energy Levels, Wavelengths	E/T	507
F⁷⁺	Trans. prob., Oscill. Strengths	E/T	531
F⁸⁺	Trans. prob., Oscill. Strengths	Th	573
F⁻	Energy Levels, Wavelengths	Th	670
F⁶⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	690
F³⁺	Energy Levels, Wavelengths	E/T	705
F³⁺	Energy Levels, Wavelengths	E/T	725
F	Trans. prob., Oscill. Strengths	E/T	800

Ne	Energy Levels, Wavelengths	Th	28
Ne ⁷⁺	Energy Levels, Wavelengths	Th	39
Ne	Energy Levels, Wavelengths	Th	41
Ne ⁷⁺	Energy Levels, Wavelengths	Th	49
Ne	Energy Levels, Wavelengths	Exp	77
Ne ⁴⁺	Energy Levels, Wavelengths	Th	88
Ne ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	102
Ne ⁺	Energy Levels, Wavelengths	E/T	102
Ne ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	110
Ne ³⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	116
Ne	Energy Levels, Wavelengths	Exp	168
Ne ⁺	Energy Levels, Wavelengths	Exp	168
Ne ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Ne ⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T	172
Ne ⁸⁺	Trans. prob., Oscill. Strengths	Th	192
Ne ⁷⁺	Trans. prob., Oscill. Strengths	Th	207
Ne ⁴⁺	Trans. prob., Oscill. Strengths	Th	225
Ne	Trans. prob., Oscill. Strengths	E/T	233
Ne ⁷⁺	Trans. prob., Oscill. Strengths	Th	253
Ne ²⁺⁻⁴⁺	Energy Levels, Wavelengths	Exp	282
Ne ⁶⁺	Energy Levels, Wavelengths	Th	305
Ne	Energy Levels, Wavelengths	Exp	307
Ne ⁷⁺	Energy Levels, Wavelengths	Th	316
Ne	Energy Levels, Wavelengths	Th	342
Ne ⁶⁺	Energy Levels, Wavelengths	Th	353
Ne	Energy Levels, Wavelengths	Th	390
Ne	Energy Levels, Wavelengths	Th	394
Ne	Energy Levels, Wavelengths	Th	402
Ne ⁷⁺	Energy Levels, Wavelengths	Th	402
Ne ⁷⁺	Energy Levels, Wavelengths	Th	411
Ne	Energy Levels, Wavelengths	Th	447
Ne ⁴⁺	Energy Levels, Wavelengths	Exp	453
Ne ⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	453
Ne ⁸⁺	Energy Levels, Wavelengths	Exp	454
Ne ⁴⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	455
Ne ⁸⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	456
Ne ⁸⁺	Energy Levels, Wavelengths	Exp	459
Ne ⁸⁺⁻⁹⁺	Energy Levels, Wavelengths	E/T	460
Ne ^{+ -2+}	Energy Levels, Wavelengths	Exp	463
Ne ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	463
Ne ³⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	469
Ne ³⁺	Energy Levels, Wavelengths	Exp	476
Ne ^{+ -3+}	Energy Levels, Wavelengths	Exp	479
Ne ⁰⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	484
Ne ³⁺	Energy Levels, Wavelengths	Exp	484
Ne ⁴⁺	Energy Levels, Wavelengths	Exp	484
Ne ⁴⁺	Energy Levels, Wavelengths	Exp	500
Ne ⁶⁺⁻⁸⁺	Energy Levels, Wavelengths	E/T	507
Ne ⁶⁺	Trans. prob., Oscill. Strengths	Th	528
Ne ⁺	Trans. prob., Oscill. Strengths	Th	549
Ne ⁹⁺	Trans. prob., Oscill. Strengths	Th	573
Ne	Energy Levels, Wavelengths	Exp	604
Ne ²⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T	653
Ne ³⁺	Energy Levels, Wavelengths	E/T	653
Ne ⁷⁺	Energy Levels, Wavelengths	Th	662
Ne ⁺	Energy Levels, Wavelengths	Th	665
Ne ⁶⁺	Energy Levels, Wavelengths	Th	668
Ne	Energy Levels, Wavelengths	Th	677
Ne ³⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	695

Ne ⁴⁺	Energy Levels, Wavelengths	E/T	705
Ne	Energy Levels, Wavelengths	Exp	723
Ne ⁴⁺	Energy Levels, Wavelengths	E/T	725
Ne	Energy Levels, Wavelengths	Th	742
Ne	Energy Levels, Wavelengths	Exp	761
Ne	Energy Levels, Wavelengths	Exp	763
Ne ⁷⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	775
Ne ⁶⁺	Trans. prob., Oscill. Strengths	Th	803
Ne	Trans. prob., Oscill. Strengths	Th	810
Ne	Trans. prob., Oscill. Strengths	E/T	830
Ne ⁷⁺	Trans. prob., Oscill. Strengths	Th	834
Ne	Trans. prob., Oscill. Strengths	Th	841
Na	Energy Levels, Wavelengths	Exp	15
Na	Energy Levels, Wavelengths	Exp	20
Na	Energy Levels, Wavelengths	Th	28
Na	Energy Levels, Wavelengths	Th	45
Na ⁴⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	116
Na	Energy Levels, Wavelengths	Th	157
Na	Energy Levels, Wavelengths	Th	163
Na	Energy Levels, Wavelengths	Exp	168
Na ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Na	Energy Levels, Wavelengths	E/T	172
Na ³⁺	Energy Levels, Wavelengths	E/T	172
Na ⁸⁺	Trans. prob., Oscill. Strengths	Th	207
Na ⁹⁺	Trans. prob., Oscill. Strengths	Th	250
Na ⁺	Energy Levels, Wavelengths	E/T	271
Na ³⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	282
Na	Energy Levels, Wavelengths	Th	292
Na ⁹⁺	Energy Levels, Wavelengths	Exp	307
Na ⁹⁺	Energy Levels, Wavelengths	Th	316
Na ⁻	Energy Levels, Wavelengths	Th	333
Na	Energy Levels, Wavelengths	Th	360
Na	Energy Levels, Wavelengths	Th	402
Na	Energy Levels, Wavelengths	Th	411
Na ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th	451
Na ⁹⁺⁻¹⁰⁺	Energy Levels, Wavelengths	Exp	456
Na ⁹⁺⁻¹⁰⁺	Energy Levels, Wavelengths	E/T	460
Na	Energy Levels, Wavelengths	Exp	462
Na ⁵⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	463
Na ⁴⁺	Energy Levels, Wavelengths	Exp	479
Na	Energy Levels, Wavelengths	Exp	483
Na ¹⁰⁺	Trans. prob., Oscill. Strengths	Th	573
Na ⁹⁺	Energy Levels, Wavelengths	Exp	595
Na	Energy Levels, Wavelengths	Th	663
Na ⁺	Energy Levels, Wavelengths	Th	677
Na ⁵⁺	Energy Levels, Wavelengths	E/T	705
Na-Al	Energy Levels, Wavelengths	Exp	755
Na ⁹⁺	Energy Levels, Wavelengths	Exp	775
Mg ⁺	Energy Levels, Wavelengths	Exp	4
Mg	Energy Levels, Wavelengths	Exp	15
Mg	Energy Levels, Wavelengths	Exp	20
Mg	Energy Levels, Wavelengths	Th	28
Mg	Energy Levels, Wavelengths	Exp	31
Mg ²⁺	Energy Levels, Wavelengths	E/T	37
Mg ⁺	Energy Levels, Wavelengths	Th	48
Mg	Energy Levels, Wavelengths	Th	84
Mg ⁺	Energy Levels, Wavelengths	Th	98
Mg ⁴⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	110
Mg ⁴⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	116

Mg ²⁺	Energy Levels, Wavelengths	E/T	129
Mg ⁻	Energy Levels, Wavelengths	Th	158
Mg	Energy Levels, Wavelengths	Th	158
Mg ⁺	Energy Levels, Wavelengths	Th	163
Mg	Energy Levels, Wavelengths	Exp	168
Mg ⁺	Energy Levels, Wavelengths	Exp	168
Mg ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Mg	Energy Levels, Wavelengths	E/T	172
Mg ⁺	Energy Levels, Wavelengths	E/T	172
Mg ⁴⁺	Energy Levels, Wavelengths	E/T	172
Mg ⁺	Trans. prob., Oscill. Strengths	Exp	180
Mg	Trans. prob., Oscill. Strengths	Th	218
Mg	Trans. prob., Oscill. Strengths	Th	262
Mg ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	282
Mg ⁺	Energy Levels, Wavelengths	Th	292
Mg ¹⁰⁺	Energy Levels, Wavelengths	Th	316
Mg ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	380
Mg ⁶⁺	Energy Levels, Wavelengths	Exp	389
Mg	Energy Levels, Wavelengths	Th	390
Mg	Energy Levels, Wavelengths	Th	402
Mg ⁺	Energy Levels, Wavelengths	Th	411
Mg ⁺	Energy Levels, Wavelengths	Exp	421
Mg ¹¹⁺	Energy Levels, Wavelengths	Exp	448
Mg	Energy Levels, Wavelengths	Th	451
Mg ²⁺	Energy Levels, Wavelengths	Th	451
Mg ⁹⁺	Energy Levels, Wavelengths	Exp	454
Mg ⁴⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	455
Mg ⁸⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	456
Mg ⁹⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	459
Mg ⁹⁺⁻¹¹⁺	Energy Levels, Wavelengths	E/T	460
Mg	Energy Levels, Wavelengths	Exp	462
Mg ⁴⁺	Energy Levels, Wavelengths	Exp	463
Mg ⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	463
Mg ³⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	469
Mg ⁹⁺	Energy Levels, Wavelengths	Exp	477
Mg ⁹⁺	Energy Levels, Wavelengths	Exp	478
Mg ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	479
Mg	Energy Levels, Wavelengths	Exp	483
Mg ⁴⁺	Energy Levels, Wavelengths	Exp	500
Mg ⁺	Trans. prob., Oscill. Strengths	Th	520
Mg	Trans. prob., Oscill. Strengths	Exp	521
Mg	Trans. prob., Oscill. Strengths	E/T	531
Mg ⁺	Trans. prob., Oscill. Strengths	Th	535
Mg ¹⁰⁺	Trans. prob., Oscill. Strengths	Th	575
Mg ⁺	Trans. prob., Oscill. Strengths	Exp	576
Mg ⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	587
Mg ⁵⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	595
Mg ⁹⁺	Energy Levels, Wavelengths	Exp	595
Mg ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	599
Mg ⁻	Energy Levels, Wavelengths	Th	600
Mg	Energy Levels, Wavelengths	Th	642
Mg ⁸⁺	Energy Levels, Wavelengths	Th	648
Mg ¹⁰⁺	Energy Levels, Wavelengths	Th	652
Mg ²⁺⁻¹⁰⁺	Energy Levels, Wavelengths	Th	657
Mg ⁹⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	690
Mg ⁶⁺	Energy Levels, Wavelengths	Exp	695
Mg ⁸⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	695
Mg ⁶⁺	Energy Levels, Wavelengths	E/T	705
Mg	Energy Levels, Wavelengths	Exp	733

Mg ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	772
Mg ⁹⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	775
Mg ⁺	Trans. prob., Oscill. Strengths	Th	792
Mg ¹⁰⁺	Trans. prob., Oscill. Strengths	Th	828
Mg ²⁺⁻¹⁰⁺	Trans. prob., Oscill. Strengths	Th	832
Al ³⁺	Energy Levels, Wavelengths	Th	17
Al	Energy Levels, Wavelengths	Exp	20
Al ⁺	Energy Levels, Wavelengths	Th	84
Al ⁴⁺	Energy Levels, Wavelengths	Exp	110
Al ⁶⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	110
Al ⁴⁺	Energy Levels, Wavelengths	Exp	116
Al ⁶⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	116
Al ⁺	Energy Levels, Wavelengths	Exp	159
Al	Energy Levels, Wavelengths	Exp	168
Al ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	170
Al ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	172
Al	Energy Levels, Wavelengths	Exp	177
Al ⁺	Trans. prob., Oscill. Strengths	Th	217
Al ⁺	Trans. prob., Oscill. Strengths	Th	218
Al ⁹⁺	Trans. prob., Oscill. Strengths	Th	261
Al ³⁺⁻¹⁰⁺	Energy Levels, Wavelengths	Exp	275
Al ²⁺⁻¹¹⁺	Energy Levels, Wavelengths	Th	281
Al ⁵⁺	Energy Levels, Wavelengths	Exp	282
Al ^{+ -2+}	Energy Levels, Wavelengths	Exp	307
Al ¹¹⁺	Energy Levels, Wavelengths	Th	316
Al ⁸⁺	Energy Levels, Wavelengths	Th	348
Al ¹¹⁺	Energy Levels, Wavelengths	Th	365
Al	Energy Levels, Wavelengths	Th	395
Al	Energy Levels, Wavelengths	Th	400
Al	Energy Levels, Wavelengths	Th	402
Al ²⁺	Energy Levels, Wavelengths	Th	411
Al ⁹⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	423
Al ⁷⁺	Energy Levels, Wavelengths	Exp	441
Al ⁹⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	442
Al ¹⁰⁺	Energy Levels, Wavelengths	Exp	454
Al ¹⁰⁺⁻¹²⁺	Energy Levels, Wavelengths	E/T	460
Al	Energy Levels, Wavelengths	Exp	462
Al ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	463
Al ⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	469
Al ⁹⁺⁻¹⁰⁺	Energy Levels, Wavelengths	Exp	469
Al ⁵⁺	Energy Levels, Wavelengths	Exp	476
Al ¹⁰⁺	Energy Levels, Wavelengths	Exp	477
Al ¹⁰⁺	Energy Levels, Wavelengths	Exp	478
Al	Energy Levels, Wavelengths	Exp	483
Al ⁴⁺⁻¹¹⁺	Trans. prob., Oscill. Strengths	Th	514
Al ⁺	Trans. prob., Oscill. Strengths	E/T	531
Al ¹¹⁺	Trans. prob., Oscill. Strengths	E/T	531
Al ⁸⁺	Trans. prob., Oscill. Strengths	Th	546
Al ⁸⁺	Energy Levels, Wavelengths	Exp	595
Al ¹¹⁺	Energy Levels, Wavelengths	Th	652
Al-Cl	Energy Levels, Wavelengths	Th	656
Al ¹¹⁺	Energy Levels, Wavelengths	Th	660
Al ¹⁰⁺⁻¹²⁺	Energy Levels, Wavelengths	Th	664
Al ⁻	Energy Levels, Wavelengths	Th	670
Al ⁺	Energy Levels, Wavelengths	E/T	671
Al ¹²⁺	Energy Levels, Wavelengths	Th	688
Al ⁹⁺⁻¹⁰⁺	Energy Levels, Wavelengths	Exp	695
Al ⁷⁺	Energy Levels, Wavelengths	E/T	705
Al ¹¹⁺	Energy Levels, Wavelengths	Th	744

Al²⁺	Energy Levels, Wavelengths	Exp	772
Al¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	775
Al¹⁰⁺	Trans. prob., Oscill. Strengths	Th	822
Al¹¹⁺	Trans. prob., Oscill. Strengths	Th	828
Al⁺	Trans. prob., Oscill. Strengths	Th	837
Al¹¹⁺	Trans. prob., Oscill. Strengths	Th	876
Si⁹⁺	Energy Levels, Wavelengths	Exp	2
Si	Energy Levels, Wavelengths	Exp	20
Si	Energy Levels, Wavelengths	Exp	76
Si²⁺	Energy Levels, Wavelengths	Th	84
Si⁵⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	110
Si³⁺⁻⁴⁺	Energy Levels, Wavelengths	Exp	116
Si⁶⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	116
Si	Energy Levels, Wavelengths	Exp	168
Si⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T	170
Si⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T	172
Si¹²⁺	Trans. prob., Oscill. Strengths	Th	192
Si⁺	Trans. prob., Oscill. Strengths	Exp	210
Si^{+ -3+}	Trans. prob., Oscill. Strengths	Exp	210
Si²⁺	Trans. prob., Oscill. Strengths	Th	217
Si²⁺	Trans. prob., Oscill. Strengths	Th	218
Si¹⁰⁺	Trans. prob., Oscill. Strengths	Th	234
Si⁺	Trans. prob., Oscill. Strengths	Th	236
Si³⁺	Trans. prob., Oscill. Strengths	Th	255
Si^{+ -3+}	Energy Levels, Wavelengths	Exp	282
Si¹³⁺	Energy Levels, Wavelengths	Exp	299
Si⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	307
Si¹²⁺	Energy Levels, Wavelengths	Th	316
Si¹⁰⁺	Energy Levels, Wavelengths	Th	386
Si⁶⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	389
Si¹¹⁺⁻¹³⁺	Energy Levels, Wavelengths	Th	396
Si	Energy Levels, Wavelengths	E/T	406
Si³⁺	Energy Levels, Wavelengths	Th	411
Si³⁺	Energy Levels, Wavelengths	Th	414
Si¹¹⁺	Energy Levels, Wavelengths	Exp	426
Si¹²⁺	Energy Levels, Wavelengths	Exp	426
Si¹¹⁺	Energy Levels, Wavelengths	Exp	435
Si¹²⁺	Energy Levels, Wavelengths	Exp	435
Si⁵⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	438
Si¹¹⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	448
Si²⁺	Energy Levels, Wavelengths	Exp	454
Si⁷⁺	Energy Levels, Wavelengths	Exp	454
Si⁸⁺	Energy Levels, Wavelengths	Exp	454
Si¹¹⁺	Energy Levels, Wavelengths	Exp	454
Si⁵⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	455
Si⁷⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	456
Si¹⁰⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	459
Si¹⁰⁺⁻¹³⁺	Energy Levels, Wavelengths	E/T	460
Si	Energy Levels, Wavelengths	Exp	462
Si⁵⁺	Energy Levels, Wavelengths	Exp	463
Si⁶⁺	Energy Levels, Wavelengths	Exp	463
Si⁸⁺	Energy Levels, Wavelengths	Exp	463
Si⁷⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	469
Si³⁺	Energy Levels, Wavelengths	Exp	476
Si¹¹⁺	Energy Levels, Wavelengths	Exp	477
Si¹¹⁺	Energy Levels, Wavelengths	Exp	478
Si⁰⁺⁻³⁺	Energy Levels, Wavelengths	Exp	479
Si	Energy Levels, Wavelengths	Exp	483
Si	Energy Levels, Wavelengths	Exp	501

Si ¹⁰⁺	Trans. prob., Oscill. Strengths	Th	566
Si ¹¹⁺⁻¹³⁺	Trans. prob., Oscill. Strengths	Th	571
Si ¹²⁺	Trans. prob., Oscill. Strengths	Th	575
Si ⁷⁺	Energy Levels, Wavelengths	Th	593
Si ⁶⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	595
Si ¹³⁺	Energy Levels, Wavelengths	Th	617
Si ²⁺	Energy Levels, Wavelengths	Th	642
Si ²⁺	Energy Levels, Wavelengths	Th	644
Si	Energy Levels, Wavelengths	Th	654
Si ¹³⁺	Energy Levels, Wavelengths	Exp	659
Si ¹²⁺	Energy Levels, Wavelengths	Th	660
Si ⁻	Energy Levels, Wavelengths	Th	670
Si ⁷⁺	Energy Levels, Wavelengths	Exp	695
Si ¹⁰⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	695
Si ⁺	Energy Levels, Wavelengths	Exp	696
Si ⁵⁺⁻¹¹⁺	Energy Levels, Wavelengths	Th	703
Si ⁸⁺	Energy Levels, Wavelengths	E/T	705
Si ^{+ -2+}	Energy Levels, Wavelengths	Th	708
Si ⁴⁺⁻¹²⁺	Energy Levels, Wavelengths	Th	722
Si ²⁺	Energy Levels, Wavelengths	Th	740
Si ^{+ -2+}	Energy Levels, Wavelengths	Exp	772
Si ¹²⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	775
Si ⁷⁺	Trans. prob., Oscill. Strengths	Th	781
Si ⁷⁺	Trans. prob., Oscill. Strengths	Exp	821
Si	Trans. prob., Oscill. Strengths	Th	829
Si	Trans. prob., Oscill. Strengths	E/T	848
Si	Trans. prob., Oscill. Strengths	Exp	861
Si ⁴⁺⁻¹²⁺	Trans. prob., Oscill. Strengths	Th	867
P ¹²⁺	Energy Levels, Wavelengths	Th	49
P	Energy Levels, Wavelengths	Exp	168
P ⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T	170
P	Energy Levels, Wavelengths	E/T	172
P ⁺	Energy Levels, Wavelengths	E/T	172
P ³⁺	Trans. prob., Oscill. Strengths	Th	218
P ³⁺	Energy Levels, Wavelengths	Exp	282
P ¹³⁺	Energy Levels, Wavelengths	Th	316
P ¹²⁺	Energy Levels, Wavelengths	E/T	460
P ¹³⁺	Trans. prob., Oscill. Strengths	E/T	531
P ¹³⁺	Energy Levels, Wavelengths	Th	652
P ¹³⁺	Energy Levels, Wavelengths	Th	660
P ⁻	Energy Levels, Wavelengths	Th	670
P ⁺	Energy Levels, Wavelengths	Exp	696
P ⁹⁺	Energy Levels, Wavelengths	E/T	705
P ⁷⁺⁻⁹⁺	Trans. prob., Oscill. Strengths	Exp	821
P ¹³⁺	Trans. prob., Oscill. Strengths	Th	828
S	Energy Levels, Wavelengths	Exp	20
S ⁴⁺	Energy Levels, Wavelengths	Th	84
S ⁷⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	110
S ²⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	116
S ⁸⁺	Energy Levels, Wavelengths	Exp	116
S	Energy Levels, Wavelengths	Exp	168
S ⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T	170
S ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	172
S ⁴⁺	Trans. prob., Oscill. Strengths	Th	218
S ³⁺⁻⁴⁺	Energy Levels, Wavelengths	Exp	282
S ¹⁴⁺	Energy Levels, Wavelengths	Th	316
³³ S ⁻	Energy Levels, Wavelengths	Th	372
S ⁻	Energy Levels, Wavelengths	Th	372
S	Energy Levels, Wavelengths	Th	372

$S^{12+-15+}$	Energy Levels, Wavelengths	Exp	448
S^{9+}	Energy Levels, Wavelengths	Exp	454
S^{6+-12+}	Energy Levels, Wavelengths	Exp	455
S^{9+-14+}	Energy Levels, Wavelengths	Exp	456
S^{9+}	Energy Levels, Wavelengths	E/T	460
$S^{11+-15+}$	Energy Levels, Wavelengths	E/T	460
S^{2+-3+}	Energy Levels, Wavelengths	Exp	463
S^{4+}	Energy Levels, Wavelengths	Exp	469
S^{9+}	Energy Levels, Wavelengths	Exp	477
$S^{11+-12+}$	Energy Levels, Wavelengths	Exp	477
S^{9+}	Energy Levels, Wavelengths	Exp	478
$S^{11+-12+}$	Energy Levels, Wavelengths	Exp	478
S^{+-2+}	Energy Levels, Wavelengths	Exp	479
S	Energy Levels, Wavelengths	Exp	483
S^{9+-12+}	Energy Levels, Wavelengths	Exp	595
S^{14+}	Energy Levels, Wavelengths	Th	652
S^{14+}	Energy Levels, Wavelengths	Th	660
S^{-}	Energy Levels, Wavelengths	Th	670
S	Energy Levels, Wavelengths	Exp	696
S^{10+}	Energy Levels, Wavelengths	E/T	705
$^{33}S^{-}$	Energy Levels, Wavelengths	Th	716
S^{-}	Energy Levels, Wavelengths	Th	716
S^{2+}	Energy Levels, Wavelengths	Exp	772
S^{8+}	Trans. prob., Oscill. Strengths	Exp	821
S^{10+}	Trans. prob., Oscill. Strengths	Exp	821
S^{14+}	Trans. prob., Oscill. Strengths	Th	828
Cl^{5+-6+}	Energy Levels, Wavelengths	Exp	116
Cl	Energy Levels, Wavelengths	Exp	168
Cl^{+}	Energy Levels, Wavelengths	Exp	168
Cl^{15+}	Energy Levels, Wavelengths	Exp	169
Cl^{0+-2+}	Energy Levels, Wavelengths	E/T	170
Cl^{+-3+}	Energy Levels, Wavelengths	E/T	172
Cl^{5+}	Trans. prob., Oscill. Strengths	Th	218
Cl	Energy Levels, Wavelengths	E/T	272
Cl^{3+}	Energy Levels, Wavelengths	Exp	282
Cl^{+-2+}	Energy Levels, Wavelengths	Exp	307
Cl^{15+}	Energy Levels, Wavelengths	Th	316
Cl	Energy Levels, Wavelengths	Th	372
Cl^{-}	Energy Levels, Wavelengths	E/T	391
Cl	Energy Levels, Wavelengths	E/T	391
Cl^{0+-4+}	Energy Levels, Wavelengths	E/T	391
Cl	Trans. prob., Oscill. Strengths	Th	569
Cl^{2+}	Energy Levels, Wavelengths	Th	602
Cl^{15+}	Energy Levels, Wavelengths	Th	651
Cl^{15+}	Energy Levels, Wavelengths	Th	660
Cl^{-}	Energy Levels, Wavelengths	Th	670
$Cl^{10+-15+}$	Energy Levels, Wavelengths	E/T	701
$Cl^{13+-15+}$	Energy Levels, Wavelengths	E/T	701
Cl^{11+}	Energy Levels, Wavelengths	E/T	705
$^{35}Cl^{-}$	Energy Levels, Wavelengths	Th	716
Cl^{-}	Energy Levels, Wavelengths	Th	716
Cl	Energy Levels, Wavelengths	Th	716
Cl^{+}	Energy Levels, Wavelengths	Exp	772
Cl^{2+}	Trans. prob., Oscill. Strengths	Th	786
Cl^{15+}	Trans. prob., Oscill. Strengths	Th	827
Cl^{+-4+}	Trans. prob., Oscill. Strengths	E/T	835
Cl^{3+}	Trans. prob., Oscill. Strengths	E/T	835
Cl	Trans. prob., Oscill. Strengths	Th	853
Cl	Trans. prob., Oscill. Strengths	Th	864

Ar	Energy Levels, Wavelengths	Th	28
Ar	Energy Levels, Wavelengths	Th	41
Ar¹⁵⁺	Energy Levels, Wavelengths	Th	49
Ar⁸⁺	Energy Levels, Wavelengths	Exp	95
Ar¹³⁺	Energy Levels, Wavelengths	Th	96
Ar⁺	Energy Levels, Wavelengths	E/T	99
Ar^{+−15+}	Energy Levels, Wavelengths	E/T	99
Ar^{+−17+}	Energy Levels, Wavelengths	E/T	99
Ar^{15+−17+}	Energy Levels, Wavelengths	E/T	99
Ar^{4+−7+}	Energy Levels, Wavelengths	Exp	116
Ar	Energy Levels, Wavelengths	Exp	126
Ar⁴⁺	Energy Levels, Wavelengths	Th	127
Ar	Energy Levels, Wavelengths	Exp	128
Ar¹⁶⁺	Energy Levels, Wavelengths	Exp	150
Ar	Energy Levels, Wavelengths	Exp	168
Ar⁺	Energy Levels, Wavelengths	Exp	168
Ar^{0+−3+}	Energy Levels, Wavelengths	E/T	170
Ar^{0+−4+}	Energy Levels, Wavelengths	E/T	172
Ar	Energy Levels, Wavelengths	Exp	176
Ar	Trans. prob., Oscill. Strengths	Th	188
Ar	Trans. prob., Oscill. Strengths	Th	204
Ar⁶⁺	Trans. prob., Oscill. Strengths	Th	217
Ar^{3+−5+}	Trans. prob., Oscill. Strengths	Th	221
Ar^{7+−8+}	Trans. prob., Oscill. Strengths	Th	221
Ar^{10+−14+}	Trans. prob., Oscill. Strengths	Th	221
Ar¹⁷⁺	Trans. prob., Oscill. Strengths	Th	221
Ar¹³⁺	Trans. prob., Oscill. Strengths	Th	230
Ar¹⁴⁺	Trans. prob., Oscill. Strengths	Th	234
Ar⁴⁺	Trans. prob., Oscill. Strengths	Th	247
Ar⁷⁺	Trans. prob., Oscill. Strengths	Th	255
Ar^{2+−4+}	Energy Levels, Wavelengths	Exp	282
Ar^{0+−4+}	Energy Levels, Wavelengths	Exp	295
Ar^{0+−2+}	Energy Levels, Wavelengths	Exp	307
Ar⁹⁺	Energy Levels, Wavelengths	Exp	307
Ar⁵⁺	Energy Levels, Wavelengths	Th	313
Ar⁶⁺	Energy Levels, Wavelengths	Th	313
Ar¹⁶⁺	Energy Levels, Wavelengths	Th	320
Ar⁺	Energy Levels, Wavelengths	Exp	325
Ar	Energy Levels, Wavelengths	Exp	347
Ar¹⁶⁺	Energy Levels, Wavelengths	Th	365
Ar	Energy Levels, Wavelengths	Exp	379
Ar⁺	Energy Levels, Wavelengths	Exp	380
Ar	Energy Levels, Wavelengths	Th	390
Ar	Energy Levels, Wavelengths	Th	394
Ar	Energy Levels, Wavelengths	Th	402
Ar	Energy Levels, Wavelengths	E/T	403
Ar⁷⁺	Energy Levels, Wavelengths	Th	411
Ar	Energy Levels, Wavelengths	Exp	412
Ar⁺	Energy Levels, Wavelengths	Exp	415
Ar⁺	Energy Levels, Wavelengths	E/T	429
Ar^{15+−16+}	Energy Levels, Wavelengths	Exp	439
Ar^{9+−14+}	Energy Levels, Wavelengths	Exp	441
Ar¹¹⁺	Energy Levels, Wavelengths	Th	446
Ar	Energy Levels, Wavelengths	Th	447
Ar^{15+−17+}	Energy Levels, Wavelengths	Exp	448
Ar^{14+−16+}	Energy Levels, Wavelengths	Exp	449
Ar^{5+−7+}	Energy Levels, Wavelengths	Exp	450
Ar^{6+−12+}	Energy Levels, Wavelengths	Exp	452
Ar^{8+−9+}	Energy Levels, Wavelengths	Exp	453

Ar ¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	454
Ar ⁸⁺	Energy Levels, Wavelengths	Exp	455
Ar ¹²⁺	Energy Levels, Wavelengths	Exp	455
Ar ¹²⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp	456
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	457
Ar ⁸⁺	Energy Levels, Wavelengths	E/T	458
Ar ¹³⁺⁻¹⁷⁺	Energy Levels, Wavelengths	E/T	460
Ar ¹⁴⁺	Energy Levels, Wavelengths	E/T	461
Ar ²⁺	Energy Levels, Wavelengths	Exp	463
Ar ⁴⁺	Energy Levels, Wavelengths	Exp	463
Ar ⁵⁺	Energy Levels, Wavelengths	Exp	463
Ar ⁶⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	464
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	465
Ar ⁸⁺	Energy Levels, Wavelengths	Exp	467
Ar ⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	469
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	470
Ar ¹⁰⁺⁻¹¹⁺	Energy Levels, Wavelengths	E/T	472
Ar ¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	473
Ar ⁴⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	474
Ar ⁸⁺	Energy Levels, Wavelengths	Exp	474
Ar ¹⁵⁺⁻¹⁷⁺	Energy Levels, Wavelengths	Exp	475
Ar ¹¹⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	477
Ar ¹¹⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	478
Ar ²⁺⁻⁴⁺	Energy Levels, Wavelengths	Exp	479
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	480
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	481
Ar ³⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	482
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	487
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	488
Ar ⁶⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	489
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	490
Ar ⁵⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	492
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	493
Ar ⁸⁺	Energy Levels, Wavelengths	Exp	497
Ar ⁹⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	498
Ar ⁵⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	499
Ar ¹⁰⁺	Energy Levels, Wavelengths	Exp	500
Ar ⁷⁺	Energy Levels, Wavelengths	Exp	503
Ar ⁶⁺	Energy Levels, Wavelengths	Exp	506
Ar ⁶⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	509
Ar ¹⁶⁺	Trans. prob., Oscill. Strengths	Th	532
Ar ²⁺	Trans. prob., Oscill. Strengths	Exp	547
Ar ¹⁰⁺	Energy Levels, Wavelengths	Exp	595
Ar ¹³⁺	Energy Levels, Wavelengths	Exp	595
Ar	Energy Levels, Wavelengths	Exp	598
Ar ¹⁶⁺	Energy Levels, Wavelengths	Exp	616
Ar ²⁺	Energy Levels, Wavelengths	Th	658
Ar ¹⁵⁺	Energy Levels, Wavelengths	Th	662
Ar	Energy Levels, Wavelengths	Exp	672
Ar ⁺	Energy Levels, Wavelengths	Exp	685
Ar ¹⁷⁺	Energy Levels, Wavelengths	Th	688
Ar ⁶⁺	Energy Levels, Wavelengths	Exp	695
Ar ¹⁵⁺	Energy Levels, Wavelengths	Exp	699
Ar ¹⁶⁺	Energy Levels, Wavelengths	Exp	699
Ar ¹³⁺	Energy Levels, Wavelengths	Exp	704
Ar ⁺	Energy Levels, Wavelengths	Th	727
Ar	Energy Levels, Wavelengths	Exp	729
Ar	Energy Levels, Wavelengths	E/T	732
Ar ^{+ -2+}	Energy Levels, Wavelengths	Exp	734

Ar ^{9+−17+}	Energy Levels, Wavelengths	Exp	735
Ar ¹⁶⁺	Energy Levels, Wavelengths	Th	744
Ar	Energy Levels, Wavelengths	Exp	746
Ar [−]	Energy Levels, Wavelengths	Exp	748
Ar ¹⁶⁺	Energy Levels, Wavelengths	Th	753
Ar	Energy Levels, Wavelengths	Exp	764
Ar ¹²⁺	Energy Levels, Wavelengths	Exp	769
Ar	Energy Levels, Wavelengths	Exp	770
Ar ^{2+−3+}	Trans. prob., Oscill. Strengths	Exp	789
Ar	Trans. prob., Oscill. Strengths	E/T	830
Ar ²⁺	Trans. prob., Oscill. Strengths	Th	833
Ar ¹⁵⁺	Trans. prob., Oscill. Strengths	Th	834
Ar ¹⁶⁺	Trans. prob., Oscill. Strengths	Th	876
K	Energy Levels, Wavelengths	Exp	20
K	Energy Levels, Wavelengths	Th	28
K	Energy Levels, Wavelengths	Th	45
K	Energy Levels, Wavelengths	Th	157
K	Energy Levels, Wavelengths	Exp	168
K ¹⁷⁺	Energy Levels, Wavelengths	Exp	169
K ^{0+−2+}	Energy Levels, Wavelengths	E/T	170
K	Energy Levels, Wavelengths	E/T	172
K ³⁺	Energy Levels, Wavelengths	E/T	172
K ⁷⁺	Trans. prob., Oscill. Strengths	Th	218
K ¹⁶⁺	Energy Levels, Wavelengths	E/T	271
K ^{3+−5+}	Energy Levels, Wavelengths	Exp	282
K	Energy Levels, Wavelengths	Th	292
K ¹⁷⁺	Energy Levels, Wavelengths	Th	316
K	Energy Levels, Wavelengths	Th	360
K	Energy Levels, Wavelengths	Th	402
K	Energy Levels, Wavelengths	E/T	403
K	Energy Levels, Wavelengths	Th	411
K ¹⁷⁺	Energy Levels, Wavelengths	Exp	448
K ^{0+−1+}	Energy Levels, Wavelengths	Th	451
K ¹²⁺	Energy Levels, Wavelengths	Exp	454
K ⁹⁺	Energy Levels, Wavelengths	E/T	458
K ¹⁶⁺	Energy Levels, Wavelengths	E/T	460
K	Energy Levels, Wavelengths	Exp	462
K ²⁺	Energy Levels, Wavelengths	Exp	463
K ⁶⁺	Energy Levels, Wavelengths	Exp	463
K ⁸⁺	Energy Levels, Wavelengths	Exp	469
K ^{3+−4+}	Energy Levels, Wavelengths	Exp	479
K ¹⁷⁺	Energy Levels, Wavelengths	Th	651
K	Energy Levels, Wavelengths	Th	663
K ¹³⁺	Energy Levels, Wavelengths	E/T	705
K ¹⁷⁺	Trans. prob., Oscill. Strengths	Th	827
Ca ^{0+−1+}	Energy Levels, Wavelengths	Exp	20
Ca	Energy Levels, Wavelengths	Th	28
Ca ⁺	Energy Levels, Wavelengths	Th	48
Ca ¹⁷⁺	Energy Levels, Wavelengths	Th	49
Ca ^{4+−5+}	Energy Levels, Wavelengths	Exp	116
Ca ^{7+−9+}	Energy Levels, Wavelengths	Exp	116
Ca ¹⁷⁺	Energy Levels, Wavelengths	Th	118
Ca ¹⁹⁺	Energy Levels, Wavelengths	Exp	146
Ca	Energy Levels, Wavelengths	Exp	155
Ca [−]	Energy Levels, Wavelengths	Th	158
Ca	Energy Levels, Wavelengths	Th	158
Ca	Energy Levels, Wavelengths	Exp	168
Ca ⁺	Energy Levels, Wavelengths	Exp	168
Ca ^{0+−2+}	Energy Levels, Wavelengths	E/T	170

Ca	Energy Levels, Wavelengths	E/T	172
Ca⁺	Energy Levels, Wavelengths	E/T	172
Ca⁴⁺	Energy Levels, Wavelengths	E/T	172
Ca⁸⁺	Trans. prob., Oscill. Strengths	Th	217
Ca⁸⁺	Trans. prob., Oscill. Strengths	Th	218
Ca⁴⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	282
Ca⁺	Energy Levels, Wavelengths	Th	292
Ca¹⁹⁺	Energy Levels, Wavelengths	Exp	297
Ca	Energy Levels, Wavelengths	Th	402
Ca⁹⁺	Energy Levels, Wavelengths	Th	402
Ca¹⁷⁺	Energy Levels, Wavelengths	Th	402
Ca	Energy Levels, Wavelengths	E/T	403
Ca¹⁷⁺⁻¹⁸⁺	Energy Levels, Wavelengths	Exp	409
Ca⁺	Energy Levels, Wavelengths	Th	411
Ca¹⁷⁺⁻¹⁸⁺	Energy Levels, Wavelengths	Exp	448
Ca	Energy Levels, Wavelengths	Th	451
Ca²⁺	Energy Levels, Wavelengths	Th	451
Ca⁹⁺	Energy Levels, Wavelengths	Exp	454
Ca¹³⁺	Energy Levels, Wavelengths	Exp	454
Ca¹⁰⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp	455
Ca¹⁰⁺	Energy Levels, Wavelengths	E/T	458
Ca¹¹⁺⁻¹⁹⁺	Energy Levels, Wavelengths	E/T	460
Ca⁺	Energy Levels, Wavelengths	Exp	462
Ca⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	469
Ca⁹⁺	Energy Levels, Wavelengths	Exp	469
Ca¹²⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp	473
Ca⁹⁺	Energy Levels, Wavelengths	Exp	477
Ca⁹⁺	Energy Levels, Wavelengths	Exp	478
Ca⁺	Energy Levels, Wavelengths	Exp	479
Ca⁴⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	479
Ca⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	483
Ca¹⁴⁺	Energy Levels, Wavelengths	Exp	500
Ca	Trans. prob., Oscill. Strengths	E/T	531
Ca⁺	Trans. prob., Oscill. Strengths	Th	535
Ca¹³⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp	595
Ca¹⁸⁺	Energy Levels, Wavelengths	Th	651
Ca⁹⁺	Energy Levels, Wavelengths	Exp	695
Ca¹⁴⁺	Energy Levels, Wavelengths	E/T	705
Ca⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	755
Ca¹⁸⁺	Trans. prob., Oscill. Strengths	Th	827
Sc	Energy Levels, Wavelengths	Exp	20
Sc¹⁸⁺	Energy Levels, Wavelengths	Th	49
Sc⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	170
Sc	Energy Levels, Wavelengths	E/T	172
Sc⁺	Energy Levels, Wavelengths	E/T	172
Sc⁹⁺	Trans. prob., Oscill. Strengths	Th	218
Sc¹⁹⁺	Energy Levels, Wavelengths	Th	316
Sc³⁺	Energy Levels, Wavelengths	Th	361
Sc²⁺	Energy Levels, Wavelengths	Th	411
Sc¹¹⁺	Energy Levels, Wavelengths	E/T	458
Sc⁺	Energy Levels, Wavelengths	Exp	479
Sc	Energy Levels, Wavelengths	Exp	483
Sc¹⁹⁺	Trans. prob., Oscill. Strengths	E/T	531
Sc¹⁹⁺	Energy Levels, Wavelengths	Th	651
Sc¹⁵⁺	Energy Levels, Wavelengths	E/T	705
Sc-Ni⁺	Energy Levels, Wavelengths	Exp	755
Sc¹⁹⁺	Trans. prob., Oscill. Strengths	Th	827
Ti	Energy Levels, Wavelengths	Exp	20
Ti⁹⁺	Energy Levels, Wavelengths	Th	26

Ti⁺	Energy Levels, Wavelengths	Exp	42
Ti¹⁶⁺	Energy Levels, Wavelengths	Th	88
Ti	Energy Levels, Wavelengths	Exp	138
Ti⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Ti³⁺	Energy Levels, Wavelengths	E/T	170
Ti	Energy Levels, Wavelengths	E/T	172
Ti⁺	Energy Levels, Wavelengths	E/T	172
Ti⁹⁺	Trans. prob., Oscill. Strengths	Th	195
Ti³⁺	Trans. prob., Oscill. Strengths	Th	212
Ti⁹⁺	Trans. prob., Oscill. Strengths	Th	216
Ti¹⁰⁺	Trans. prob., Oscill. Strengths	Th	218
Ti¹⁶⁺	Trans. prob., Oscill. Strengths	Th	225
Ti¹⁸⁺	Trans. prob., Oscill. Strengths	Th	234
Ti¹¹⁺	Trans. prob., Oscill. Strengths	Th	255
Ti¹⁰⁺	Energy Levels, Wavelengths	Th	269
Ti¹³⁺⁻²⁰⁺	Energy Levels, Wavelengths	Th	289
Ti	Energy Levels, Wavelengths	Exp	307
Ti²⁺	Energy Levels, Wavelengths	Exp	307
Ti²⁰⁺	Energy Levels, Wavelengths	Th	316
Ti	Energy Levels, Wavelengths	E/T	403
Ti³⁺	Energy Levels, Wavelengths	Th	405
Ti³⁺	Energy Levels, Wavelengths	Th	411
Ti¹³⁺⁻¹⁶⁺	Energy Levels, Wavelengths	Exp	441
Ti¹⁸⁺	Energy Levels, Wavelengths	Exp	441
Ti¹²⁺	Energy Levels, Wavelengths	E/T	458
Ti	Energy Levels, Wavelengths	Exp	462
Ti⁺	Energy Levels, Wavelengths	Exp	479
Ti	Energy Levels, Wavelengths	Exp	483
Ti¹⁸⁺	Trans. prob., Oscill. Strengths	Th	517
Ti¹³⁺⁻²⁰⁺	Trans. prob., Oscill. Strengths	Th	518
Ti¹⁸⁺	Trans. prob., Oscill. Strengths	E/T	531
Ti⁺	Energy Levels, Wavelengths	Exp	599
Ti²⁰⁺	Energy Levels, Wavelengths	Exp	615
Ti⁶⁺	Energy Levels, Wavelengths	Th	627
Ti¹⁸⁺	Energy Levels, Wavelengths	Th	630
Ti²⁰⁺	Energy Levels, Wavelengths	Th	641
Ti⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	682
Ti¹⁶⁺	Energy Levels, Wavelengths	E/T	705
Ti	Energy Levels, Wavelengths	Exp	751
Ti⁺	Energy Levels, Wavelengths	Exp	752
Ti⁺	Energy Levels, Wavelengths	Exp	754
Ti⁺	Energy Levels, Wavelengths	Exp	760
Ti	Energy Levels, Wavelengths	Exp	765
Ti²⁺	Energy Levels, Wavelengths	Exp	772
Ti⁶⁺	Trans. prob., Oscill. Strengths	Th	807
Ti¹⁸⁺	Trans. prob., Oscill. Strengths	Th	808
Ti²⁰⁺	Trans. prob., Oscill. Strengths	Th	819
Ti⁶⁺	Trans. prob., Oscill. Strengths	E/T	835
Ti⁶⁺⁻⁹⁺	Trans. prob., Oscill. Strengths	E/T	835
V¹⁰⁺	Energy Levels, Wavelengths	Th	46
V²²⁺	Energy Levels, Wavelengths	Exp	90
V⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
V	Energy Levels, Wavelengths	E/T	172
V⁺	Energy Levels, Wavelengths	E/T	172
V¹⁰⁺	Trans. prob., Oscill. Strengths	Th	205
V¹¹⁺	Trans. prob., Oscill. Strengths	Th	218
V	Energy Levels, Wavelengths	E/T	283
V²¹⁺	Energy Levels, Wavelengths	Th	316
V	Energy Levels, Wavelengths	Exp	358

V ⁴⁺	Energy Levels, Wavelengths	Th	405
V ¹³⁺	Energy Levels, Wavelengths	E/T	458
V ⁺	Energy Levels, Wavelengths	Exp	479
V	Energy Levels, Wavelengths	Exp	483
V	Energy Levels, Wavelengths	Exp	491
V ²¹⁺	Trans. prob., Oscill. Strengths	E/T	531
V ⁴⁺	Trans. prob., Oscill. Strengths	Th	548
V ²¹⁺	Energy Levels, Wavelengths	Th	641
V ⁷⁺	Energy Levels, Wavelengths	E/T	705
V ⁺	Energy Levels, Wavelengths	Exp	711
V ⁺	Energy Levels, Wavelengths	Exp	772
V ²¹⁺	Trans. prob., Oscill. Strengths	Th	819
Cr	Energy Levels, Wavelengths	Exp	20
Cr ⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	110
Cr ⁷⁺	Energy Levels, Wavelengths	Th	115
Cr	Energy Levels, Wavelengths	Exp	168
Cr ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Cr	Energy Levels, Wavelengths	E/T	172
Cr ⁺	Energy Levels, Wavelengths	E/T	172
Cr ⁺	Trans. prob., Oscill. Strengths	Exp	186
Cr ¹²⁺	Trans. prob., Oscill. Strengths	Th	218
Cr ⁷⁺	Trans. prob., Oscill. Strengths	Th	241
Cr ²²⁺	Energy Levels, Wavelengths	Th	316
Cr ⁵⁺	Energy Levels, Wavelengths	Th	405
Cr ¹⁴⁺	Energy Levels, Wavelengths	E/T	458
Cr ¹⁴⁺⁻¹⁵⁺	Energy Levels, Wavelengths	E/T	460
Cr ²¹⁺	Energy Levels, Wavelengths	E/T	460
Cr ⁺	Energy Levels, Wavelengths	Exp	479
Cr ³⁺⁻⁴⁺	Energy Levels, Wavelengths	Exp	479
Cr ⁷⁺	Energy Levels, Wavelengths	Exp	595
Cr ⁺	Energy Levels, Wavelengths	Exp	599
Cr ⁺	Energy Levels, Wavelengths	Exp	601
Cr	Energy Levels, Wavelengths	Exp	606
Cr ²²⁺	Energy Levels, Wavelengths	Th	641
Cr	Energy Levels, Wavelengths	Exp	667
Cr ⁺	Energy Levels, Wavelengths	Th	697
Cr ¹⁸⁺	Energy Levels, Wavelengths	E/T	705
Cr	Energy Levels, Wavelengths	E/T	709
Cr ⁺	Energy Levels, Wavelengths	Th	714
Cr ¹⁴⁺⁻²²⁺	Energy Levels, Wavelengths	Th	743
Cr ⁺²⁺	Energy Levels, Wavelengths	Exp	772
Cr ⁺	Trans. prob., Oscill. Strengths	Exp	785
Cr ²²⁺	Trans. prob., Oscill. Strengths	Th	819
Cr ⁺	Trans. prob., Oscill. Strengths	Th	858
Cr ¹⁴⁺⁻²²⁺	Trans. prob., Oscill. Strengths	Th	875
Mn ⁷⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	110
Mn ⁶⁺	Energy Levels, Wavelengths	Exp	116
Mn ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Mn	Energy Levels, Wavelengths	E/T	172
Mn ⁺	Energy Levels, Wavelengths	E/T	172
Mn ¹³⁺	Trans. prob., Oscill. Strengths	Th	218
Mn ²³⁺	Energy Levels, Wavelengths	Th	316
Mn ²⁰⁺	Energy Levels, Wavelengths	Th	348
Mn ⁷⁺	Energy Levels, Wavelengths	Th	361
Mn ⁶⁺	Energy Levels, Wavelengths	Th	405
Mn ⁷⁺	Energy Levels, Wavelengths	Th	405
Mn ¹⁵⁺	Energy Levels, Wavelengths	E/T	458
Mn	Energy Levels, Wavelengths	Exp	462
Mn ³⁺	Energy Levels, Wavelengths	Exp	479

Mn	Trans. prob., Oscill. Strengths	Exp	513
Mn²³⁺	Trans. prob., Oscill. Strengths	E/T	531
Mn²⁰⁺	Trans. prob., Oscill. Strengths	Th	546
Mn⁷⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	595
Mn¹⁴⁺	Energy Levels, Wavelengths	Exp	595
Mn⁺	Energy Levels, Wavelengths	Exp	599
Mn²³⁺	Energy Levels, Wavelengths	Th	641
Mn	Energy Levels, Wavelengths	Exp	667
Mn¹⁹⁺	Energy Levels, Wavelengths	E/T	705
Mn⁺	Energy Levels, Wavelengths	Exp	759
Mn⁺	Energy Levels, Wavelengths	Exp	762
Mn⁺²⁺	Energy Levels, Wavelengths	Exp	772
Mn²³⁺	Trans. prob., Oscill. Strengths	Th	819
Mn⁹⁺⁻¹²⁺	Trans. prob., Oscill. Strengths	E/T	835
Mn	Trans. prob., Oscill. Strengths	Exp	877
Mn	Trans. prob., Oscill. Strengths	E/T	879
Fe⁷⁺	Energy Levels, Wavelengths	E/T	3
Fe¹⁰⁺	Energy Levels, Wavelengths	E/T	5
Fe¹⁰⁺	Energy Levels, Wavelengths	E/T	6
Fe¹⁰⁺	Energy Levels, Wavelengths	Exp	8
Fe¹⁰⁺	Energy Levels, Wavelengths	Exp	11
Fe¹²⁺	Energy Levels, Wavelengths	Exp	11
Fe¹³⁺	Energy Levels, Wavelengths	Exp	11
Fe¹⁸⁺⁻¹⁹⁺	Energy Levels, Wavelengths	Th	13
Fe	Energy Levels, Wavelengths	Exp	20
Fe²¹⁺	Energy Levels, Wavelengths	Th	30
Fe²³⁺	Energy Levels, Wavelengths	Th	49
Fe²³⁺	Energy Levels, Wavelengths	Th	80
Fe⁹⁺	Energy Levels, Wavelengths	Th	89
Fe²¹⁺	Energy Levels, Wavelengths	Th	96
Fe²³⁺⁻²⁵⁺	Energy Levels, Wavelengths	Exp	107
Fe⁸⁺	Energy Levels, Wavelengths	Exp	108
Fe⁶⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	109
Fe⁷⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp	109
Fe⁶⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp	110
Fe¹⁶⁺	Energy Levels, Wavelengths	Exp	111
Fe⁷⁺	Energy Levels, Wavelengths	Exp	112
Fe⁶⁺	Energy Levels, Wavelengths	Exp	113
Fe⁺	Energy Levels, Wavelengths	Exp	114
Fe⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp	116
Fe¹¹⁺	Energy Levels, Wavelengths	Exp	116
Fe	Energy Levels, Wavelengths	Exp	131
Fe⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th	137
Fe²⁴⁺	Energy Levels, Wavelengths	Th	141
Fe	Energy Levels, Wavelengths	Th	149
Fe⁺	Energy Levels, Wavelengths	E/T	151
Fe	Energy Levels, Wavelengths	Exp	168
Fe⁺	Energy Levels, Wavelengths	Exp	168
Fe⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	170
Fe⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	172
Fe¹⁶⁺	Trans. prob., Oscill. Strengths	Exp	178
Fe⁷⁺	Trans. prob., Oscill. Strengths	Th	179
Fe⁺	Trans. prob., Oscill. Strengths	Th	181
Fe⁺	Trans. prob., Oscill. Strengths	Th	182
Fe¹⁰⁺	Trans. prob., Oscill. Strengths	Th	183
Fe¹⁰⁺	Trans. prob., Oscill. Strengths	Th	184
Fe¹²⁺	Trans. prob., Oscill. Strengths	Th	187
Fe¹³⁺	Trans. prob., Oscill. Strengths	Th	189
Fe¹⁸⁺⁻¹⁹⁺	Trans. prob., Oscill. Strengths	Th	190

Fe²⁵⁺	Trans. prob., Oscill. Strengths	Th	191
Fe³⁺	Trans. prob., Oscill. Strengths	Th	196
Fe²¹⁺	Trans. prob., Oscill. Strengths	Th	200
Fe¹³⁺	Trans. prob., Oscill. Strengths	Th	206
Fe²³⁺	Trans. prob., Oscill. Strengths	Th	214
Fe¹⁴⁺	Trans. prob., Oscill. Strengths	Th	217
Fe¹⁴⁺	Trans. prob., Oscill. Strengths	Th	218
Fe⁹⁺	Trans. prob., Oscill. Strengths	Th	226
Fe²¹⁺	Trans. prob., Oscill. Strengths	Th	230
Fe²²⁺	Trans. prob., Oscill. Strengths	Th	234
Fe⁸⁺	Trans. prob., Oscill. Strengths	Th	235
Fe⁺	Trans. prob., Oscill. Strengths	Exp	237
Fe⁷⁺	Trans. prob., Oscill. Strengths	Th	238
Fe⁶⁺	Trans. prob., Oscill. Strengths	Th	239
Fe⁺	Trans. prob., Oscill. Strengths	Th	240
Fe⁺	Trans. prob., Oscill. Strengths	Th	243
Fe¹¹⁺	Trans. prob., Oscill. Strengths	Th	252
Fe¹³⁺	Trans. prob., Oscill. Strengths	Th	252
Fe²⁴⁺	Trans. prob., Oscill. Strengths	Th	254
Fe	Trans. prob., Oscill. Strengths	Exp	260
Fe¹⁹⁺	Trans. prob., Oscill. Strengths	Th	263
Fe¹⁷⁺	Trans. prob., Oscill. Strengths	Th	264
Fe⁺	Trans. prob., Oscill. Strengths	Th	267
Fe¹⁴⁺	Energy Levels, Wavelengths	Th	269
Fe	Energy Levels, Wavelengths	E/T	271
Fe⁸⁺	Energy Levels, Wavelengths	Th	273
Fe¹²⁺	Energy Levels, Wavelengths	Exp	274
Fe¹⁶⁺	Energy Levels, Wavelengths	Exp	276
Fe¹²⁺	Energy Levels, Wavelengths	Exp	278
Fe³⁺⁻¹⁶⁺	Energy Levels, Wavelengths	Exp	285
Fe¹⁴⁺	Energy Levels, Wavelengths	E/T	302
Fe¹¹⁺	Energy Levels, Wavelengths	Th	303
Fe¹³⁺	Energy Levels, Wavelengths	Th	303
Fe⁰⁺⁻²⁺	Energy Levels, Wavelengths	Exp	307
Fe¹²⁺	Energy Levels, Wavelengths	E/T	314
Fe³⁺	Energy Levels, Wavelengths	Exp	335
Fe⁵⁺	Energy Levels, Wavelengths	Exp	335
Fe¹⁴⁺	Energy Levels, Wavelengths	Th	344
Fe²¹⁺	Energy Levels, Wavelengths	Th	348
Fe¹⁵⁺⁻¹⁷⁺	Energy Levels, Wavelengths	E/T	374
Fe⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	380
Fe⁺	Energy Levels, Wavelengths	Exp	380
Fe¹⁹⁺⁻²³⁺	Energy Levels, Wavelengths	Exp	385
Fe²³⁺	Energy Levels, Wavelengths	Exp	385
Fe⁺	Energy Levels, Wavelengths	E/T	387
Fe⁸⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp	389
Fe⁹⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp	389
Fe¹¹⁺⁻²¹⁺	Energy Levels, Wavelengths	Exp	392
Fe⁷⁺	Energy Levels, Wavelengths	Th	405
Fe⁸⁺	Energy Levels, Wavelengths	Th	405
Fe¹⁶⁺⁻¹⁸⁺	Energy Levels, Wavelengths	Exp	409
Fe²⁰⁺⁻²⁴⁺	Energy Levels, Wavelengths	Exp	409
Fe⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	436
Fe⁺	Energy Levels, Wavelengths	Exp	436
Fe¹⁷⁺	Energy Levels, Wavelengths	Exp	441
Fe²²⁺	Energy Levels, Wavelengths	Exp	448
Fe²⁴⁺	Energy Levels, Wavelengths	Exp	448
Fe⁹⁺	Energy Levels, Wavelengths	Exp	454
Fe¹¹⁺	Energy Levels, Wavelengths	Exp	454

Fe¹²⁺	Energy Levels, Wavelengths	Exp	454
Fe¹⁴⁺	Energy Levels, Wavelengths	Exp	454
Fe¹⁶⁺	Energy Levels, Wavelengths	Exp	454
Fe¹⁷⁺	Energy Levels, Wavelengths	Exp	454
Fe⁷⁺⁻¹⁷⁺	Energy Levels, Wavelengths	Exp	455
Fe⁶⁺⁻²³⁺	Energy Levels, Wavelengths	Exp	456
Fe¹⁶⁺	Energy Levels, Wavelengths	E/T	458
Fe⁸⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	459
Fe¹⁴⁺⁻²¹⁺	Energy Levels, Wavelengths	Exp	459
Fe¹⁵⁺⁻²⁵⁺	Energy Levels, Wavelengths	E/T	460
Fe	Energy Levels, Wavelengths	Exp	462
Fe⁹⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	469
Fe¹⁶⁺⁻¹⁸⁺	Energy Levels, Wavelengths	Exp	473
Fe^{+ -2+}	Energy Levels, Wavelengths	Exp	476
Fe⁹⁺	Energy Levels, Wavelengths	Exp	477
Fe¹¹⁺	Energy Levels, Wavelengths	Exp	477
Fe¹²⁺	Energy Levels, Wavelengths	Exp	477
Fe⁹⁺	Energy Levels, Wavelengths	Exp	478
Fe¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	478
Fe^{+ -6+}	Energy Levels, Wavelengths	Exp	479
Fe	Energy Levels, Wavelengths	Exp	483
Fe¹¹⁺	Energy Levels, Wavelengths	Exp	500
Fe¹⁴⁺	Trans. prob., Oscill. Strengths	Th	522
Fe¹¹⁺	Trans. prob., Oscill. Strengths	Th	523
Fe¹³⁺	Trans. prob., Oscill. Strengths	Th	523
Fe¹⁸⁺	Trans. prob., Oscill. Strengths	Th	524
Fe¹⁸⁺	Trans. prob., Oscill. Strengths	Th	530
Fe²¹⁺	Trans. prob., Oscill. Strengths	Th	546
Fe²³⁺	Trans. prob., Oscill. Strengths	Th	565
Fe⁺	Trans. prob., Oscill. Strengths	Th	567
Fe²¹⁺	Energy Levels, Wavelengths	Exp	583
Fe¹⁵⁺	Energy Levels, Wavelengths	E/T	590
Fe¹¹⁺	Energy Levels, Wavelengths	Th	591
Fe¹²⁺	Energy Levels, Wavelengths	Th	592
Fe⁹⁺	Energy Levels, Wavelengths	E/T	594
Fe⁶⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp	595
Fe⁷⁺⁻⁸⁺	Energy Levels, Wavelengths	E/T	596
Fe⁺	Energy Levels, Wavelengths	Exp	599
Fe⁷⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp	603
Fe⁶⁺	Energy Levels, Wavelengths	Th	647
Fe²³⁺	Energy Levels, Wavelengths	Th	662
Fe	Energy Levels, Wavelengths	Exp	667
Fe⁺	Energy Levels, Wavelengths	Th	678
Fe⁹⁺	Energy Levels, Wavelengths	Th	683
Fe¹⁶⁺⁻²³⁺	Energy Levels, Wavelengths	Exp	690
Fe⁷⁺	Energy Levels, Wavelengths	Th	693
Fe¹⁶⁺	Energy Levels, Wavelengths	Exp	694
Fe¹⁰⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp	695
Fe¹⁵⁺	Energy Levels, Wavelengths	Exp	695
Fe²⁰⁺	Energy Levels, Wavelengths	E/T	705
Fe¹⁸⁺	Energy Levels, Wavelengths	Th	706
Fe¹⁶⁺	Energy Levels, Wavelengths	Th	719
Fe¹⁷⁺⁻²²⁺	Energy Levels, Wavelengths	Exp	731
Fe¹⁵⁺	Energy Levels, Wavelengths	E/T	736
Fe¹⁴⁺	Energy Levels, Wavelengths	Exp	738
Fe¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	741
Fe⁶⁺	Energy Levels, Wavelengths	Exp	747
Fe¹⁶⁺	Energy Levels, Wavelengths	Exp	747
Fe²⁴⁺	Energy Levels, Wavelengths	Th	753

Fe	Energy Levels, Wavelengths	Exp	755
Fe⁺	Energy Levels, Wavelengths	Exp	756
Fe⁺	Energy Levels, Wavelengths	Exp	757
Fe⁺	Energy Levels, Wavelengths	Exp	758
Fe⁸⁺	Energy Levels, Wavelengths	Exp	767
Fe⁹⁺	Energy Levels, Wavelengths	Exp	767
Fe¹¹⁺	Energy Levels, Wavelengths	Exp	767
Fe¹³⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp	767
Fe¹⁷⁺	Energy Levels, Wavelengths	Exp	767
Fe¹⁸⁺	Energy Levels, Wavelengths	Exp	767
Fe¹⁵⁺⁻¹⁶⁺	Energy Levels, Wavelengths	E/T	768
Fe¹⁵⁺⁻¹⁷⁺	Energy Levels, Wavelengths	E/T	768
Fe⁰⁺⁻²⁺	Energy Levels, Wavelengths	Exp	772
Fe¹⁵⁺⁻²²⁺	Energy Levels, Wavelengths	Exp	775
Fe¹¹⁺	Trans. prob., Oscill. Strengths	Th	778
Fe¹²⁺	Trans. prob., Oscill. Strengths	Th	779
Fe⁹⁺	Trans. prob., Oscill. Strengths	Th	780
Fe⁷⁺⁻⁸⁺	Trans. prob., Oscill. Strengths	Th	782
Fe¹⁷⁺	Trans. prob., Oscill. Strengths	Th	788
Fe²³⁺	Trans. prob., Oscill. Strengths	Th	834
Fe¹³⁺	Trans. prob., Oscill. Strengths	Th	849
Fe¹⁵⁺⁻¹⁶⁺	Trans. prob., Oscill. Strengths	Th	852
Fe⁷⁺	Trans. prob., Oscill. Strengths	Th	854
Fe⁺	Trans. prob., Oscill. Strengths	Th	856
Fe⁰⁺⁻¹⁺	Trans. prob., Oscill. Strengths	E/T	857
Fe	Trans. prob., Oscill. Strengths	Exp	861
Fe¹⁶⁺	Trans. prob., Oscill. Strengths	Th	866
Fe	Trans. prob., Oscill. Strengths	E/T	878
Co⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Co	Energy Levels, Wavelengths	E/T	172
Co¹⁵⁺	Trans. prob., Oscill. Strengths	Th	218
Co²⁵⁺	Energy Levels, Wavelengths	Th	316
Co²²⁺	Energy Levels, Wavelengths	Th	348
Co⁺	Energy Levels, Wavelengths	Exp	479
Co⁵⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp	479
Co²⁵⁺	Trans. prob., Oscill. Strengths	E/T	531
Co²²⁺	Trans. prob., Oscill. Strengths	Th	546
Co¹⁵⁺	Trans. prob., Oscill. Strengths	E/T	563
Co²¹⁺	Energy Levels, Wavelengths	E/T	705
Ni¹⁴⁺	Energy Levels, Wavelengths	Th	12
Ni¹⁵⁺	Energy Levels, Wavelengths	Th	12
Ni	Energy Levels, Wavelengths	Exp	20
Ni²⁵⁺	Energy Levels, Wavelengths	Th	49
Ni	Energy Levels, Wavelengths	Exp	53
Ni⁺	Energy Levels, Wavelengths	Exp	53
Ni²⁵⁺	Energy Levels, Wavelengths	Exp	64
Ni¹⁶⁺	Energy Levels, Wavelengths	Th	67
Ni¹⁶⁺⁻¹⁷⁺	Energy Levels, Wavelengths	Th	67
Ni⁺	Energy Levels, Wavelengths	Th	94
Ni¹⁰⁺	Energy Levels, Wavelengths	Exp	110
Ni⁺	Energy Levels, Wavelengths	E/T	151
Ni⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Ni	Energy Levels, Wavelengths	E/T	172
Ni⁺	Energy Levels, Wavelengths	E/T	172
Ni¹³⁺	Trans. prob., Oscill. Strengths	Th	199
Ni¹⁵⁺	Trans. prob., Oscill. Strengths	Th	206
Ni¹⁶⁺	Trans. prob., Oscill. Strengths	Th	218
Ni²²⁺	Energy Levels, Wavelengths	Th	294
Ni²³⁺	Energy Levels, Wavelengths	Th	348

Ni ⁹⁺	Energy Levels, Wavelengths	Th	357
Ni ¹²⁺	Energy Levels, Wavelengths	Exp	454
Ni ¹³⁺	Energy Levels, Wavelengths	Exp	454
Ni ⁹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp	455
Ni ¹⁷⁺	Energy Levels, Wavelengths	Exp	455
Ni ¹⁸⁺	Energy Levels, Wavelengths	E/T	458
Ni ¹⁸⁺	Energy Levels, Wavelengths	Exp	459
Ni ¹⁵⁺⁻¹⁶⁺	Energy Levels, Wavelengths	E/T	460
Ni ¹⁸⁺⁻¹⁹⁺	Energy Levels, Wavelengths	E/T	460
Ni ²⁴⁺⁻²⁷⁺	Energy Levels, Wavelengths	E/T	460
Ni ¹²⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp	473
Ni ¹²⁺	Energy Levels, Wavelengths	Exp	477
Ni ¹²⁺	Energy Levels, Wavelengths	Exp	478
Ni ⁰⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp	479
Ni ⁷⁺	Energy Levels, Wavelengths	Exp	479
Ni	Energy Levels, Wavelengths	Exp	483
Ni ²²⁺	Trans. prob., Oscill. Strengths	Th	519
Ni ¹⁶⁺	Trans. prob., Oscill. Strengths	Th	525
Ni ¹⁰⁺	Trans. prob., Oscill. Strengths	Th	526
Ni ²⁶⁺	Trans. prob., Oscill. Strengths	E/T	531
Ni ²³⁺	Trans. prob., Oscill. Strengths	Th	546
Ni ⁹⁺	Trans. prob., Oscill. Strengths	Th	552
Ni ¹⁶⁺	Trans. prob., Oscill. Strengths	E/T	563
Ni	Energy Levels, Wavelengths	Exp	589
Ni ⁹⁺⁻¹⁰⁺	Energy Levels, Wavelengths	Exp	595
Ni ¹²⁺	Energy Levels, Wavelengths	Exp	595
Ni ¹⁴⁺⁻¹⁶⁺	Energy Levels, Wavelengths	Exp	595
Ni ¹⁶⁺	Energy Levels, Wavelengths	Th	597
Ni ⁺	Energy Levels, Wavelengths	Exp	599
Ni	Energy Levels, Wavelengths	Exp	613
Ni ¹⁴⁺	Energy Levels, Wavelengths	Th	619
Ni ¹³⁺	Energy Levels, Wavelengths	Th	620
Ni ¹⁴⁺	Energy Levels, Wavelengths	Th	637
Ni ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Th	691
Ni ²⁵⁺	Energy Levels, Wavelengths	Th	692
Ni ²²⁺	Energy Levels, Wavelengths	E/T	705
Ni ⁺	Energy Levels, Wavelengths	Exp	752
Ni ⁺	Energy Levels, Wavelengths	Exp	772
Ni ¹⁸⁺⁻²⁰⁺	Energy Levels, Wavelengths	Exp	775
Ni	Energy Levels, Wavelengths	Exp	776
Ni ¹⁶⁺	Trans. prob., Oscill. Strengths	Th	783
Ni ¹⁴⁺	Trans. prob., Oscill. Strengths	Th	796
Ni ¹³⁺	Trans. prob., Oscill. Strengths	Th	798
Ni ¹⁴⁺	Trans. prob., Oscill. Strengths	Th	818
Ni ²⁵⁺	Trans. prob., Oscill. Strengths	Th	851
Ni ⁺	Trans. prob., Oscill. Strengths	Th	855
Ni ⁺	Trans. prob., Oscill. Strengths	Exp	859
Ni	Trans. prob., Oscill. Strengths	Exp	861
Cu ²⁶⁺	Energy Levels, Wavelengths	Exp	64
Cu ¹⁶⁺	Energy Levels, Wavelengths	Th	122
Cu	Energy Levels, Wavelengths	Exp	168
Cu ⁺	Energy Levels, Wavelengths	Exp	168
Cu ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Cu ¹⁷⁺	Trans. prob., Oscill. Strengths	Th	217
Cu ¹⁷⁺	Trans. prob., Oscill. Strengths	Th	218
Cu ¹⁶⁺	Trans. prob., Oscill. Strengths	Th	246
Cu ¹⁷⁺	Trans. prob., Oscill. Strengths	Th	248
Cu	Energy Levels, Wavelengths	Exp	277
Cu	Energy Levels, Wavelengths	Exp	307

Cu²⁺	Energy Levels, Wavelengths	Exp	307
Cu²⁷⁺	Energy Levels, Wavelengths	Th	316
Cu¹⁵⁺	Energy Levels, Wavelengths	Th	332
Cu²⁴⁺	Energy Levels, Wavelengths	Th	348
Cu¹¹⁺	Energy Levels, Wavelengths	Th	361
Cu	Energy Levels, Wavelengths	Exp	371
Cu	Energy Levels, Wavelengths	Exp	397
Cu	Energy Levels, Wavelengths	Th	402
Cu	Energy Levels, Wavelengths	Exp	420
Cu¹⁷⁺	Energy Levels, Wavelengths	Th	422
Cu	Energy Levels, Wavelengths	Exp	432
Cu¹⁹⁺	Energy Levels, Wavelengths	E/T	458
Cu⁺	Energy Levels, Wavelengths	Exp	479
Cu	Energy Levels, Wavelengths	Exp	504
Cu²⁷⁺	Trans. prob., Oscill. Strengths	E/T	531
Cu¹⁵⁺	Trans. prob., Oscill. Strengths	Th	538
Cu²⁴⁺	Trans. prob., Oscill. Strengths	Th	546
Cu¹⁷⁺	Trans. prob., Oscill. Strengths	E/T	563
Cu	Trans. prob., Oscill. Strengths	Exp	574
Cu¹⁹⁺	Energy Levels, Wavelengths	Th	609
Cu¹⁹⁺	Energy Levels, Wavelengths	Th	618
Cu⁺	Energy Levels, Wavelengths	Exp	681
Cu¹⁹⁺	Energy Levels, Wavelengths	Th	687
Cu¹⁹⁺⁻²²⁺	Energy Levels, Wavelengths	Exp	690
Cu	Energy Levels, Wavelengths	Exp	730
Cu¹⁴⁺	Energy Levels, Wavelengths	E/T	766
Cu⁺	Energy Levels, Wavelengths	Exp	772
Cu¹⁹⁺	Trans. prob., Oscill. Strengths	Th	787
Cu¹⁹⁺	Trans. prob., Oscill. Strengths	Th	795
Cu¹³⁺⁻¹⁶⁺	Trans. prob., Oscill. Strengths	E/T	835
Cu¹⁹⁺	Trans. prob., Oscill. Strengths	Th	850
Cu	Trans. prob., Oscill. Strengths	Th	871
Zn	Energy Levels, Wavelengths	Th	14
Zn²⁷⁺	Energy Levels, Wavelengths	Th	49
Zn	Energy Levels, Wavelengths	Exp	168
Zn⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Zn	Trans. prob., Oscill. Strengths	Th	201
Zn¹⁸⁺	Trans. prob., Oscill. Strengths	Th	217
Zn¹⁸⁺	Trans. prob., Oscill. Strengths	Th	218
Zn²⁶⁺	Trans. prob., Oscill. Strengths	Th	234
Zn¹⁹⁺	Trans. prob., Oscill. Strengths	Th	255
Zn²⁸⁺	Energy Levels, Wavelengths	Th	316
Zn²⁵⁺	Energy Levels, Wavelengths	Th	348
Zn	Energy Levels, Wavelengths	Th	402
Zn¹⁹⁺	Energy Levels, Wavelengths	Th	402
Zn²⁷⁺	Energy Levels, Wavelengths	Th	402
Zn²⁰⁺	Energy Levels, Wavelengths	E/T	458
Zn	Trans. prob., Oscill. Strengths	Th	529
Zn⁺	Trans. prob., Oscill. Strengths	Th	535
Zn²⁵⁺	Trans. prob., Oscill. Strengths	Th	546
Zn⁺	Energy Levels, Wavelengths	Exp	599
Zn⁺	Energy Levels, Wavelengths	Exp	681
Zn⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	772
Ga	Energy Levels, Wavelengths	Exp	168
Ga	Energy Levels, Wavelengths	E/T	170
Ga	Energy Levels, Wavelengths	E/T	172
Ga¹⁹⁺	Trans. prob., Oscill. Strengths	Th	218
Ga²⁹⁺	Energy Levels, Wavelengths	Th	316
Ga	Energy Levels, Wavelengths	Th	395

Ga	Energy Levels, Wavelengths	Th	402
Ga²¹⁺	Energy Levels, Wavelengths	E/T	458
Ga⁺	Trans. prob., Oscill. Strengths	Th	529
Ga²⁹⁺	Trans. prob., Oscill. Strengths	E/T	531
Ga-Br	Energy Levels, Wavelengths	Th	656
Ga⁻	Energy Levels, Wavelengths	Th	670
Ga⁺	Energy Levels, Wavelengths	Exp	681
Ga⁺	Energy Levels, Wavelengths	Exp	772
Ge	Energy Levels, Wavelengths	Exp	168
Ge⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Ge²⁺	Trans. prob., Oscill. Strengths	Th	201
Ge³¹⁺	Energy Levels, Wavelengths	Exp	297
Ge³⁰⁺	Energy Levels, Wavelengths	Th	316
Ge⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	380
Ge²²⁺	Energy Levels, Wavelengths	E/T	458
Ge⁴⁺	Energy Levels, Wavelengths	Exp	468
Ge²⁺	Trans. prob., Oscill. Strengths	Th	529
Ge⁻	Energy Levels, Wavelengths	Th	670
Ge¹⁶⁺⁻¹⁹⁺	Trans. prob., Oscill. Strengths	E/T	835
Ge¹⁸⁺	Trans. prob., Oscill. Strengths	E/T	835
As⁺	Energy Levels, Wavelengths	Exp	168
As⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
As³⁺	Trans. prob., Oscill. Strengths	Th	201
As³¹⁺	Energy Levels, Wavelengths	Th	316
As²³⁺	Energy Levels, Wavelengths	E/T	458
As³⁺	Trans. prob., Oscill. Strengths	Th	529
As⁻	Energy Levels, Wavelengths	Th	670
Se²¹⁺	Energy Levels, Wavelengths	Th	55
Se	Energy Levels, Wavelengths	Exp	168
Se⁺	Energy Levels, Wavelengths	Exp	168
Se	Energy Levels, Wavelengths	E/T	170
Se²¹⁺	Trans. prob., Oscill. Strengths	Th	206
Se³²⁺	Energy Levels, Wavelengths	Th	316
Se²⁴⁺	Energy Levels, Wavelengths	E/T	458
Se⁴⁺	Trans. prob., Oscill. Strengths	Th	529
Se⁻	Energy Levels, Wavelengths	Th	670
Br	Energy Levels, Wavelengths	Exp	168
Br²³⁺	Trans. prob., Oscill. Strengths	Th	217
Br³³⁺	Energy Levels, Wavelengths	Th	316
Br⁻	Energy Levels, Wavelengths	E/T	391
Br	Energy Levels, Wavelengths	E/T	391
Br⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T	391
Br⁵⁺	Trans. prob., Oscill. Strengths	Th	529
Br³³⁺	Trans. prob., Oscill. Strengths	E/T	531
Br	Trans. prob., Oscill. Strengths	Th	569
Br⁻	Energy Levels, Wavelengths	Th	670
Kr	Energy Levels, Wavelengths	Th	14
Kr⁴⁺	Energy Levels, Wavelengths	E/T	18
Kr	Energy Levels, Wavelengths	Exp	22
Kr	Energy Levels, Wavelengths	Th	28
Kr³⁺	Energy Levels, Wavelengths	Exp	32
Kr³⁺	Energy Levels, Wavelengths	Exp	33
Kr	Energy Levels, Wavelengths	Th	41
Kr³³⁺	Energy Levels, Wavelengths	Th	49
Kr²³⁺	Energy Levels, Wavelengths	Th	55
Kr⁶⁺	Energy Levels, Wavelengths	Th	91
Kr³¹⁺	Energy Levels, Wavelengths	Th	96
Kr²⁸⁺⁻³⁰⁺	Energy Levels, Wavelengths	Exp	134
Kr³²⁺	Energy Levels, Wavelengths	Exp	134

Kr³⁴⁺	Energy Levels, Wavelengths	Th	141
Kr³⁺	Energy Levels, Wavelengths	Exp	147
Kr³⁺	Energy Levels, Wavelengths	Exp	148
Kr³⁺	Energy Levels, Wavelengths	Exp	153
Kr	Energy Levels, Wavelengths	Exp	155
Kr	Energy Levels, Wavelengths	Exp	168
Kr	Energy Levels, Wavelengths	Exp	176
Kr⁶⁺	Trans. prob., Oscill. Strengths	Th	201
Kr²³⁺	Trans. prob., Oscill. Strengths	Th	206
Kr⁺	Trans. prob., Oscill. Strengths	Exp	211
Kr³¹⁺	Trans. prob., Oscill. Strengths	Th	230
Kr³⁴⁺	Trans. prob., Oscill. Strengths	Th	254
Kr³²⁺	Energy Levels, Wavelengths	Th	286
Kr⁵⁺	Energy Levels, Wavelengths	E/T	296
Kr	Energy Levels, Wavelengths	Exp	321
Kr²⁶⁺⁻³⁴⁺	Energy Levels, Wavelengths	Th	341
Kr¹⁸⁺	Energy Levels, Wavelengths	Th	361
Kr	Energy Levels, Wavelengths	Exp	373
Kr	Energy Levels, Wavelengths	Th	402
Kr	Energy Levels, Wavelengths	Th	417
Kr⁷⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp	453
Kr⁸⁺	Energy Levels, Wavelengths	E/T	458
Kr	Energy Levels, Wavelengths	Exp	486
Kr⁶⁺	Trans. prob., Oscill. Strengths	Th	529
Kr²⁶⁺⁻³⁴⁺	Trans. prob., Oscill. Strengths	Th	542
Kr⁺	Energy Levels, Wavelengths	Exp	581
Kr⁴⁺	Energy Levels, Wavelengths	E/T	611
Kr⁴⁺	Energy Levels, Wavelengths	Th	625
Kr³⁴⁺	Energy Levels, Wavelengths	Th	634
Kr²⁺⁻³⁺	Energy Levels, Wavelengths	Exp	650
Kr⁺	Energy Levels, Wavelengths	Th	673
Kr⁺	Energy Levels, Wavelengths	Exp	681
Kr²⁷⁺	Energy Levels, Wavelengths	Th	707
Kr⁺⁴⁺	Energy Levels, Wavelengths	E/T	713
Kr⁺	Energy Levels, Wavelengths	Exp	728
Kr	Energy Levels, Wavelengths	Th	739
Kr³⁴⁺	Energy Levels, Wavelengths	Th	753
Kr	Trans. prob., Oscill. Strengths	Exp	784
Kr⁴⁺	Trans. prob., Oscill. Strengths	Th	791
Kr⁴⁺	Trans. prob., Oscill. Strengths	Th	805
Kr³⁴⁺	Trans. prob., Oscill. Strengths	Th	815
Kr	Trans. prob., Oscill. Strengths	E/T	830
Kr²²⁺	Trans. prob., Oscill. Strengths	E/T	835
Kr	Trans. prob., Oscill. Strengths	Th	874
Rb	Energy Levels, Wavelengths	Th	28
Rb	Energy Levels, Wavelengths	Th	45
Rb	Energy Levels, Wavelengths	Exp	168
Rb	Energy Levels, Wavelengths	E/T	170
Rb	Energy Levels, Wavelengths	E/T	172
Rb³³⁺	Trans. prob., Oscill. Strengths	Th	234
Rb	Energy Levels, Wavelengths	Th	292
Rb	Energy Levels, Wavelengths	Th	360
Rb	Energy Levels, Wavelengths	Th	400
Rb	Energy Levels, Wavelengths	Th	402
Rb	Energy Levels, Wavelengths	Th	411
Rb⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th	451
Rb²⁷⁺	Energy Levels, Wavelengths	E/T	458
Rb⁷⁺	Trans. prob., Oscill. Strengths	Th	529
Rb³⁵⁺	Trans. prob., Oscill. Strengths	E/T	531

Rb	Energy Levels, Wavelengths	Th	663
Sr	Energy Levels, Wavelengths	Th	14
Sr	Energy Levels, Wavelengths	Th	28
Sr⁺	Energy Levels, Wavelengths	Th	48
Sr⁺	Energy Levels, Wavelengths	Exp	155
Sr-Rh⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Sr	Energy Levels, Wavelengths	E/T	172
Sr⁺	Energy Levels, Wavelengths	E/T	172
Sr⁺	Energy Levels, Wavelengths	Th	292
Sr	Energy Levels, Wavelengths	Th	402
Sr⁺	Energy Levels, Wavelengths	Th	411
Sr	Energy Levels, Wavelengths	Th	451
Sr²⁺	Energy Levels, Wavelengths	Th	451
Sr²⁸⁺	Energy Levels, Wavelengths	E/T	458
Sr⁺	Energy Levels, Wavelengths	Exp	462
Sr⁸⁺	Trans. prob., Oscill. Strengths	Th	529
Sr	Trans. prob., Oscill. Strengths	E/T	531
Sr³⁷⁺	Energy Levels, Wavelengths	Th	617
Sr⁺	Energy Levels, Wavelengths	Exp	755
Y	Energy Levels, Wavelengths	E/T	172
Y⁺	Energy Levels, Wavelengths	E/T	172
Y⁻	Energy Levels, Wavelengths	Th	370
Y⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	416
Y¹¹⁺	Energy Levels, Wavelengths	E/T	458
Y²⁹⁺	Energy Levels, Wavelengths	E/T	458
Y⁹⁺	Trans. prob., Oscill. Strengths	Th	529
Zr³⁷⁺	Energy Levels, Wavelengths	Th	49
Zr²⁷⁺	Energy Levels, Wavelengths	Th	55
Zr	Energy Levels, Wavelengths	Exp	168
Zr⁺	Energy Levels, Wavelengths	Exp	168
Zr	Energy Levels, Wavelengths	E/T	172
Zr⁺	Energy Levels, Wavelengths	E/T	172
Zr²⁷⁺	Trans. prob., Oscill. Strengths	Th	206
Zr	Energy Levels, Wavelengths	Th	402
Zr¹¹⁺	Energy Levels, Wavelengths	Th	402
Zr²⁹⁺	Energy Levels, Wavelengths	Th	402
Zr³⁷⁺	Energy Levels, Wavelengths	Th	402
Zr⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	416
Zr⁺	Energy Levels, Wavelengths	E/T	443
Zr¹²⁺	Energy Levels, Wavelengths	E/T	458
Zr³⁰⁺	Energy Levels, Wavelengths	E/T	458
Zr⁺	Energy Levels, Wavelengths	Exp	479
Zr	Energy Levels, Wavelengths	Exp	505
Zr	Energy Levels, Wavelengths	Exp	508
Zr¹⁰⁺	Trans. prob., Oscill. Strengths	Th	529
Zr³⁹⁺	Trans. prob., Oscill. Strengths	Th	551
Zr	Trans. prob., Oscill. Strengths	Exp	570
Zr³⁹⁺	Trans. prob., Oscill. Strengths	Th	579
Zr²⁺	Energy Levels, Wavelengths	Th	712
Nb	Energy Levels, Wavelengths	E/T	172
Nb⁺	Energy Levels, Wavelengths	E/T	172
Nb⁺	Trans. prob., Oscill. Strengths	E/T	185
Nb²⁺	Trans. prob., Oscill. Strengths	E/T	185
Nb¹¹⁺	Trans. prob., Oscill. Strengths	Th	201
Nb	Energy Levels, Wavelengths	Exp	359
Nb¹³⁺	Energy Levels, Wavelengths	E/T	458
Nb³¹⁺	Energy Levels, Wavelengths	E/T	458
Nb³¹⁺	Energy Levels, Wavelengths	Exp	496
Nb	Trans. prob., Oscill. Strengths	E/T	516

Nb ¹¹⁺	Trans. prob., Oscill. Strengths	Th	529
Nb ³⁹⁺	Trans. prob., Oscill. Strengths	E/T	531
Mo ²⁹⁺	Energy Levels, Wavelengths	Th	55
Mo ³⁹⁺	Energy Levels, Wavelengths	Th	80
Mo ⁵⁺	Energy Levels, Wavelengths	E/T	87
Mo ³⁷⁺	Energy Levels, Wavelengths	Th	96
Mo ^{23+–27+}	Energy Levels, Wavelengths	Exp	152
Mo	Energy Levels, Wavelengths	E/T	172
Mo ⁺	Energy Levels, Wavelengths	E/T	172
Mo ¹²⁺	Trans. prob., Oscill. Strengths	Th	201
Mo ²⁹⁺	Trans. prob., Oscill. Strengths	Th	206
Mo ³⁹⁺	Trans. prob., Oscill. Strengths	Th	214
Mo ⁺	Trans. prob., Oscill. Strengths	E/T	219
Mo ⁵⁺	Trans. prob., Oscill. Strengths	Th	224
Mo ³⁷⁺	Trans. prob., Oscill. Strengths	Th	230
Mo	Energy Levels, Wavelengths	Exp	307
Mo ³⁷⁺	Energy Levels, Wavelengths	Th	348
Mo ²⁴⁺	Energy Levels, Wavelengths	Th	361
Mo ¹⁴⁺	Energy Levels, Wavelengths	E/T	458
Mo ³²⁺	Energy Levels, Wavelengths	E/T	458
Mo ¹²⁺	Trans. prob., Oscill. Strengths	Th	529
Mo ³⁷⁺	Trans. prob., Oscill. Strengths	Th	546
Mo ⁵⁺	Trans. prob., Oscill. Strengths	Th	556
Mo ¹⁰⁺	Energy Levels, Wavelengths	Th	625
Mo ³⁸⁺	Energy Levels, Wavelengths	Th	632
Mo ³⁹⁺	Energy Levels, Wavelengths	Th	662
Mo ³⁸⁺	Energy Levels, Wavelengths	Th	718
Mo ¹⁰⁺	Trans. prob., Oscill. Strengths	Th	805
Mo ³⁸⁺	Trans. prob., Oscill. Strengths	Th	811
Mo ⁺	Trans. prob., Oscill. Strengths	E/T	831
Mo ³⁹⁺	Trans. prob., Oscill. Strengths	Th	834
Tc ⁺	Energy Levels, Wavelengths	E/T	151
Tc	Energy Levels, Wavelengths	E/T	172
Tc ⁺	Energy Levels, Wavelengths	E/T	172
Tc ⁺	Trans. prob., Oscill. Strengths	Th	267
Tc ⁴¹⁺	Trans. prob., Oscill. Strengths	E/T	531
Ru	Energy Levels, Wavelengths	Exp	168
Ru ⁻	Energy Levels, Wavelengths	Th	370
Rh ⁴¹⁺	Trans. prob., Oscill. Strengths	Th	234
Pd	Energy Levels, Wavelengths	Th	14
Pd-Te	Energy Levels, Wavelengths	E/T	170
Pd	Energy Levels, Wavelengths	Exp	416
Pd ¹⁸⁺	Energy Levels, Wavelengths	E/T	458
Pd ⁴⁴⁺	Energy Levels, Wavelengths	Th	753
Ag ⁴⁴⁺	Energy Levels, Wavelengths	Th	49
Ag ³⁵⁺	Trans. prob., Oscill. Strengths	Th	217
Ag ⁻	Energy Levels, Wavelengths	Th	370
Ag	Energy Levels, Wavelengths	Exp	371
Ag	Energy Levels, Wavelengths	Th	402
Ag ¹⁹⁺	Energy Levels, Wavelengths	E/T	458
Ag ¹⁹⁺	Energy Levels, Wavelengths	Exp	468
Ag ⁴⁵⁺	Trans. prob., Oscill. Strengths	E/T	531
Cd	Energy Levels, Wavelengths	Th	14
Cd	Energy Levels, Wavelengths	Exp	155
Cd ³⁰⁺	Energy Levels, Wavelengths	Th	361
Cd	Energy Levels, Wavelengths	Th	402
Cd ²⁰⁺	Energy Levels, Wavelengths	E/T	458
Cd ⁺	Trans. prob., Oscill. Strengths	Th	535
Cd ⁺	Energy Levels, Wavelengths	Exp	681

Cd ²⁴⁺	Energy Levels, Wavelengths	Th	691
In ⁺	Energy Levels, Wavelengths	Exp	155
In	Energy Levels, Wavelengths	Exp	168
In	Energy Levels, Wavelengths	E/T	172
In	Energy Levels, Wavelengths	Th	395
In	Energy Levels, Wavelengths	Th	402
In ²¹⁺	Energy Levels, Wavelengths	E/T	458
In ¹⁹⁺	Trans. prob., Oscill. Strengths	Th	529
In-I	Energy Levels, Wavelengths	Th	656
In ⁻	Energy Levels, Wavelengths	Th	670
Sn ⁴⁷⁺	Energy Levels, Wavelengths	Th	49
Sn ⁵⁺⁻¹²⁺	Energy Levels, Wavelengths	Th	143
Sn-I ¹³⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp	166
Sn ⁺	Energy Levels, Wavelengths	E/T	170
Sn ⁺	Energy Levels, Wavelengths	E/T	272
Sn ¹⁸⁺	Energy Levels, Wavelengths	Exp	284
Sn ¹⁸⁺⁻²¹⁺	Energy Levels, Wavelengths	Exp	284
Sn ¹⁹⁺	Energy Levels, Wavelengths	Exp	284
Sn	Energy Levels, Wavelengths	Th	402
Sn ²¹⁺	Energy Levels, Wavelengths	Th	402
Sn ³⁹⁺	Energy Levels, Wavelengths	Th	402
Sn ⁴⁷⁺	Energy Levels, Wavelengths	Th	402
Sn ²²⁺	Energy Levels, Wavelengths	E/T	458
Sn ¹⁸⁺	Energy Levels, Wavelengths	Th	625
Sn ⁻	Energy Levels, Wavelengths	Th	670
Sn ¹⁴⁺⁻¹⁷⁺	Energy Levels, Wavelengths	Exp	700
Sn ¹⁸⁺	Trans. prob., Oscill. Strengths	Th	805
Sn ⁺	Trans. prob., Oscill. Strengths	Th	853
Te ⁴⁹⁺	Energy Levels, Wavelengths	Th	49
Te	Energy Levels, Wavelengths	Exp	168
Te ²⁴⁺	Energy Levels, Wavelengths	E/T	458
Te ⁻	Energy Levels, Wavelengths	Th	670
I	Energy Levels, Wavelengths	Exp	168
I ⁺	Energy Levels, Wavelengths	Exp	168
I ⁴¹⁺	Trans. prob., Oscill. Strengths	Th	217
I ⁻	Energy Levels, Wavelengths	E/T	391
I	Energy Levels, Wavelengths	E/T	391
I ⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T	391
I	Trans. prob., Oscill. Strengths	Th	569
I ⁻	Energy Levels, Wavelengths	Th	670
Xe	Energy Levels, Wavelengths	Th	14
Xe	Energy Levels, Wavelengths	Th	28
Xe ⁴⁵⁺⁻⁴⁹⁺	Energy Levels, Wavelengths	Th	29
Xe	Energy Levels, Wavelengths	Th	41
Xe ⁵¹⁺	Energy Levels, Wavelengths	Th	49
Xe	Energy Levels, Wavelengths	E/T	50
Xe ⁴¹⁺	Energy Levels, Wavelengths	Th	55
Xe	Energy Levels, Wavelengths	E/T	70
Xe ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	70
Xe ⁴⁹⁺	Energy Levels, Wavelengths	Th	96
Xe ⁴³⁺	Energy Levels, Wavelengths	Exp	103
Xe ⁴⁶⁺⁻⁵²⁺	Energy Levels, Wavelengths	Exp	105
Xe ⁴⁹⁺⁻⁵³⁺	Energy Levels, Wavelengths	Exp	107
Xe ⁵²⁺	Energy Levels, Wavelengths	Exp	119
Xe ⁵³⁺	Energy Levels, Wavelengths	Exp	119
Xe ⁴⁺	Energy Levels, Wavelengths	E/T	142
Xe ⁵⁰⁺	Energy Levels, Wavelengths	Exp	162
Xe	Energy Levels, Wavelengths	Exp	168
Xe	Energy Levels, Wavelengths	Exp	176

Xe ^{45+–49+}	Trans. prob., Oscill. Strengths	Th	198
Xe ⁴¹⁺	Trans. prob., Oscill. Strengths	Th	206
Xe ⁴⁹⁺	Trans. prob., Oscill. Strengths	Th	230
Xe ⁵⁰⁺	Trans. prob., Oscill. Strengths	Th	234
Xe ⁴⁺	Trans. prob., Oscill. Strengths	Th	256
Xe ⁺	Energy Levels, Wavelengths	Exp	279
Xe ^{22+–25+}	Energy Levels, Wavelengths	Exp	284
Xe ⁹⁺	Energy Levels, Wavelengths	Exp	288
Xe ⁵³⁺	Energy Levels, Wavelengths	Exp	297
Xe	Energy Levels, Wavelengths	Exp	318
Xe ^{6+–8+}	Energy Levels, Wavelengths	Exp	322
Xe ²⁴⁺	Energy Levels, Wavelengths	Exp	351
Xe ^{38+–43+}	Energy Levels, Wavelengths	Exp	351
Xe	Energy Levels, Wavelengths	Th	354
Xe ⁸⁺	Energy Levels, Wavelengths	E/T	375
Xe ⁺	Energy Levels, Wavelengths	Exp	383
Xe	Energy Levels, Wavelengths	Th	402
Xe ^{46+–52+}	Energy Levels, Wavelengths	Exp	407
Xe ⁺	Energy Levels, Wavelengths	Th	408
Xe ^{2+–6+}	Energy Levels, Wavelengths	E/T	418
Xe ^{9+–11+}	Energy Levels, Wavelengths	Exp	453
Xe ²⁶⁺	Energy Levels, Wavelengths	E/T	458
Xe ⁺	Trans. prob., Oscill. Strengths	Exp	511
Xe ²⁴⁺	Trans. prob., Oscill. Strengths	Th	529
Xe ⁸⁺	Trans. prob., Oscill. Strengths	Th	557
Xe	Trans. prob., Oscill. Strengths	Th	562
Xe ⁵³⁺	Trans. prob., Oscill. Strengths	Th	577
Xe	Trans. prob., Oscill. Strengths	Th	578
Xe ²²⁺	Energy Levels, Wavelengths	Th	625
Xe ^{16+–17+}	Energy Levels, Wavelengths	E/T	643
Xe ^{16+–20+}	Energy Levels, Wavelengths	E/T	643
Xe ^{18+–20+}	Energy Levels, Wavelengths	E/T	643
Xe [–]	Energy Levels, Wavelengths	Th	661
Xe ²⁶⁺	Energy Levels, Wavelengths	Exp	666
Xe ^{26+–43+}	Energy Levels, Wavelengths	Exp	666
Xe ^{30+–41+}	Energy Levels, Wavelengths	Exp	666
Xe ⁴³⁺	Energy Levels, Wavelengths	Exp	666
Xe ⁺	Energy Levels, Wavelengths	Th	673
Xe ^{46+–52+}	Energy Levels, Wavelengths	Th	686
Xe ^{16+–20+}	Energy Levels, Wavelengths	Exp	700
Xe ⁺	Energy Levels, Wavelengths	Exp	728
Xe ²²⁺	Trans. prob., Oscill. Strengths	Th	805
Xe	Trans. prob., Oscill. Strengths	Th	812
Xe	Trans. prob., Oscill. Strengths	Th	825
Xe	Trans. prob., Oscill. Strengths	E/T	830
Xe ⁸⁺	Trans. prob., Oscill. Strengths	Th	863
Cs	Energy Levels, Wavelengths	Th	28
Cs	Energy Levels, Wavelengths	Th	45
Cs	Energy Levels, Wavelengths	Th	118
Cs	Energy Levels, Wavelengths	Th	157
Cs-W ^{13+–15+}	Energy Levels, Wavelengths	Exp	166
Cs	Energy Levels, Wavelengths	Exp	168
Cs	Energy Levels, Wavelengths	E/T	170
Cs	Energy Levels, Wavelengths	E/T	172
Cs	Energy Levels, Wavelengths	Th	292
Cs	Energy Levels, Wavelengths	Th	360
Cs	Energy Levels, Wavelengths	Th	400
Cs	Energy Levels, Wavelengths	Th	402
Cs	Energy Levels, Wavelengths	Th	411

Cs	Energy Levels, Wavelengths	Th	663
Ba	Energy Levels, Wavelengths	Th	14
Ba	Energy Levels, Wavelengths	Th	28
Ba⁺	Energy Levels, Wavelengths	Th	48
Ba	Energy Levels, Wavelengths	Exp	168
Ba⁺	Energy Levels, Wavelengths	Exp	168
Ba⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Ba	Energy Levels, Wavelengths	E/T	172
Ba⁺	Energy Levels, Wavelengths	E/T	172
Ba¹¹⁺	Energy Levels, Wavelengths	Exp	288
Ba⁺	Energy Levels, Wavelengths	Th	292
Ba	Energy Levels, Wavelengths	Th	402
Ba⁺	Energy Levels, Wavelengths	Th	411
Ba⁺	Trans. prob., Oscill. Strengths	Th	535
Ba⁵⁴⁺	Energy Levels, Wavelengths	Th	753
La²⁺	Energy Levels, Wavelengths	Exp	168
La⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T	170
La	Energy Levels, Wavelengths	E/T	172
La⁺	Energy Levels, Wavelengths	E/T	172
La²⁹⁺	Energy Levels, Wavelengths	E/T	458
Ce⁵⁶⁺	Energy Levels, Wavelengths	Th	104
Ce⁰⁺⁻²⁺	Energy Levels, Wavelengths	Exp	168
Ce⁺²⁺	Energy Levels, Wavelengths	E/T	170
Ce³⁰⁺	Energy Levels, Wavelengths	E/T	458
Ce⁻	Energy Levels, Wavelengths	Th	661
Pr⁵⁶⁺	Energy Levels, Wavelengths	Th	80
Pr⁺	Energy Levels, Wavelengths	Th	93
Pr²⁺	Energy Levels, Wavelengths	Exp	168
Pr⁺	Energy Levels, Wavelengths	E/T	170
Pr⁵⁶⁺	Trans. prob., Oscill. Strengths	Th	214
Pr⁴⁷⁺	Trans. prob., Oscill. Strengths	Th	217
Pr³¹⁺	Energy Levels, Wavelengths	E/T	458
Nd⁵⁷⁺	Energy Levels, Wavelengths	Th	49
Nd⁵⁸⁺	Energy Levels, Wavelengths	Th	104
Nd	Energy Levels, Wavelengths	Exp	168
Nd⁺	Energy Levels, Wavelengths	Exp	168
Nd⁺	Energy Levels, Wavelengths	E/T	170
Nd	Energy Levels, Wavelengths	Th	402
Nd³¹⁺	Energy Levels, Wavelengths	Th	402
Nd⁵⁷⁺	Energy Levels, Wavelengths	Th	402
Nd³²⁺	Energy Levels, Wavelengths	E/T	458
Nd³²⁺	Energy Levels, Wavelengths	Exp	468
Nd⁵⁹⁺	Energy Levels, Wavelengths	Th	617
Nd⁵⁷⁺	Energy Levels, Wavelengths	Th	635
Nd⁵⁶⁺	Energy Levels, Wavelengths	Th	718
Pm⁺	Energy Levels, Wavelengths	E/T	151
Pm⁺	Trans. prob., Oscill. Strengths	Th	267
Sm	Energy Levels, Wavelengths	Exp	168
Sm⁺	Energy Levels, Wavelengths	Exp	168
Sm-Gd⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Sm³⁴⁺	Energy Levels, Wavelengths	E/T	458
Sm³⁴⁺	Energy Levels, Wavelengths	Exp	468
Sm⁶¹⁺	Energy Levels, Wavelengths	Th	617
Sm⁵⁸⁺	Energy Levels, Wavelengths	Th	632
Sm⁵⁸⁺	Trans. prob., Oscill. Strengths	Th	811
Eu⁵⁸⁺	Energy Levels, Wavelengths	Th	96
Eu⁵⁸⁺	Trans. prob., Oscill. Strengths	Th	230
Eu⁺	Energy Levels, Wavelengths	Exp	416
Eu³⁵⁺	Energy Levels, Wavelengths	E/T	458

Eu ^{14+–15+}	Energy Levels, Wavelengths	Th	636
Gd ⁶²⁺	Energy Levels, Wavelengths	Th	43
Gd ⁶²⁺	Energy Levels, Wavelengths	Th	104
Gd ^{0+–2+}	Energy Levels, Wavelengths	Exp	168
Gd ⁵²⁺	Trans. prob., Oscill. Strengths	Th	217
Gd ³⁶⁺	Energy Levels, Wavelengths	E/T	458
Gd ³⁶⁺	Energy Levels, Wavelengths	Exp	468
Gd ⁶²⁺	Trans. prob., Oscill. Strengths	E/T	531
Tb	Energy Levels, Wavelengths	Exp	168
Tb ³⁷⁺	Energy Levels, Wavelengths	E/T	458
Tb ³⁷⁺	Energy Levels, Wavelengths	Exp	468
Dy	Energy Levels, Wavelengths	Exp	168
Dy ⁺	Energy Levels, Wavelengths	Exp	168
Dy ³⁸⁺	Energy Levels, Wavelengths	E/T	458
Dy ³⁶⁺	Trans. prob., Oscill. Strengths	Th	529
Dy ⁶⁴⁺	Energy Levels, Wavelengths	Th	753
Ho ³⁹⁺	Energy Levels, Wavelengths	E/T	458
Tm ⁶⁶⁺	Energy Levels, Wavelengths	Th	118
Tm	Energy Levels, Wavelengths	Exp	168
Tm ⁺	Energy Levels, Wavelengths	Exp	168
Tm-Hf ^{0+–1+}	Energy Levels, Wavelengths	E/T	170
Tm ⁴¹⁺	Energy Levels, Wavelengths	Th	691
Yb	Energy Levels, Wavelengths	Th	14
Yb ⁺	Energy Levels, Wavelengths	Exp	155
Yb	Energy Levels, Wavelengths	Exp	168
Yb ⁺	Energy Levels, Wavelengths	Exp	168
Yb ⁵⁸⁺	Trans. prob., Oscill. Strengths	Th	217
Yb ⁴⁰⁺	Energy Levels, Wavelengths	E/T	306
Yb ⁴⁰⁺	Energy Levels, Wavelengths	Th	356
Yb ⁺	Energy Levels, Wavelengths	Th	400
Yb	Energy Levels, Wavelengths	Th	402
Yb ⁴¹⁺	Energy Levels, Wavelengths	Th	402
Yb ⁶⁷⁺	Energy Levels, Wavelengths	Th	402
Yb	Energy Levels, Wavelengths	Exp	416
Yb ⁴²⁺	Energy Levels, Wavelengths	E/T	458
Yb ⁴²⁺	Energy Levels, Wavelengths	Exp	468
Yb	Trans. prob., Oscill. Strengths	E/T	531
Yb ⁴⁰⁺	Trans. prob., Oscill. Strengths	Th	550
Yb	Trans. prob., Oscill. Strengths	Th	578
Yb ⁶⁷⁺	Energy Levels, Wavelengths	Th	635
Lu	Energy Levels, Wavelengths	Exp	168
Lu ⁵⁹⁺	Trans. prob., Oscill. Strengths	Th	217
Hf	Energy Levels, Wavelengths	Exp	168
Hf ⁺	Energy Levels, Wavelengths	Exp	168
Hf ⁺	Energy Levels, Wavelengths	E/T	172
Hf ⁴⁴⁺	Energy Levels, Wavelengths	E/T	458
Hf ⁴⁴⁺	Energy Levels, Wavelengths	Exp	468
Hf ¹²⁺	Energy Levels, Wavelengths	Th	631
Hf ²⁺	Energy Levels, Wavelengths	Th	712
Hf ¹²⁺	Trans. prob., Oscill. Strengths	Th	809
Ta ^{0+–2+}	Energy Levels, Wavelengths	Th	93
Ta	Energy Levels, Wavelengths	E/T	170
Ta ⁴⁵⁺	Energy Levels, Wavelengths	E/T	458
Ta ⁴⁵⁺	Energy Levels, Wavelengths	Exp	468
Ta ⁺	Energy Levels, Wavelengths	E/T	638
Ta ⁴⁺	Energy Levels, Wavelengths	Th	712
W ²⁴⁺	Energy Levels, Wavelengths	Th	40
W ^{55+–64+}	Energy Levels, Wavelengths	Exp	44
W ^{44+–47+}	Energy Levels, Wavelengths	Exp	57

$W^{29+-37+}$	Energy Levels, Wavelengths	E/T	60
W^{46+}	Energy Levels, Wavelengths	Exp	61
W^-	Energy Levels, Wavelengths	Exp	66
$W^{14+-37+}$	Energy Levels, Wavelengths	E/T	75
$W^{47+-48+}$	Energy Levels, Wavelengths	Exp	78
$W^{60+-63+}$	Energy Levels, Wavelengths	Exp	78
W^{5+-7+}	Energy Levels, Wavelengths	Exp	79
W^{71+}	Energy Levels, Wavelengths	Th	80
W^{4+}	Energy Levels, Wavelengths	Th	85
W^{27+}	Energy Levels, Wavelengths	Th	85
W^{44+}	Energy Levels, Wavelengths	Th	85
W^{54+}	Energy Levels, Wavelengths	Th	85
W^{61+}	Energy Levels, Wavelengths	Th	85
W^{62+}	Energy Levels, Wavelengths	Th	85
W^{69+}	Energy Levels, Wavelengths	Th	85
W^{70+}	Energy Levels, Wavelengths	Th	85
W	Energy Levels, Wavelengths	E/T	92
W^{+-2+}	Energy Levels, Wavelengths	Th	93
W^{69+}	Energy Levels, Wavelengths	Th	96
W^{63+}	Energy Levels, Wavelengths	Exp	103
$W^{42+-51+}$	Energy Levels, Wavelengths	E/T	106
W^{46+}	Energy Levels, Wavelengths	E/T	106
W^{61+}	Energy Levels, Wavelengths	E/T	106
$W^{62+-71+}$	Energy Levels, Wavelengths	E/T	106
W^{63+}	Energy Levels, Wavelengths	Th	121
$W^{65+-71+}$	Energy Levels, Wavelengths	Exp	133
$W^{29+-37+}$	Energy Levels, Wavelengths	Th	143
$W^{21+-25+}$	Energy Levels, Wavelengths	Exp	152
$W^{27+-29+}$	Energy Levels, Wavelengths	Exp	152
W	Energy Levels, Wavelengths	Exp	168
W^{0+-1+}	Energy Levels, Wavelengths	E/T	170
W	Energy Levels, Wavelengths	E/T	172
W^{24+}	Trans. prob., Oscill. Strengths	Th	203
$W^{29+-37+}$	Trans. prob., Oscill. Strengths	Th	208
W^{0+-2+}	Trans. prob., Oscill. Strengths	E/T	213
W^{71+}	Trans. prob., Oscill. Strengths	Th	214
W^+	Trans. prob., Oscill. Strengths	Th	220
W^{4+}	Trans. prob., Oscill. Strengths	Th	222
W^{27+}	Trans. prob., Oscill. Strengths	Th	222
W^{44+}	Trans. prob., Oscill. Strengths	Th	222
W^{54+}	Trans. prob., Oscill. Strengths	Th	222
W^{61+}	Trans. prob., Oscill. Strengths	Th	222
W^{62+}	Trans. prob., Oscill. Strengths	Th	222
W^{69+}	Trans. prob., Oscill. Strengths	Th	222
W^{70+}	Trans. prob., Oscill. Strengths	Th	222
W	Trans. prob., Oscill. Strengths	Th	229
W^{69+}	Trans. prob., Oscill. Strengths	Th	230
W^{63+}	Trans. prob., Oscill. Strengths	Th	244
$W^{65+-71+}$	Trans. prob., Oscill. Strengths	Th	249
W^{26+}	Energy Levels, Wavelengths	Exp	270
W^{26+}	Energy Levels, Wavelengths	Exp	287
W^{7+-8+}	Energy Levels, Wavelengths	Th	301
W^{44+}	Energy Levels, Wavelengths	E/T	306
W	Energy Levels, Wavelengths	Exp	307
$W^{42+-47+}$	Energy Levels, Wavelengths	Exp	308
$W^{21+-22+}$	Energy Levels, Wavelengths	Exp	309
$W^{24+-25+}$	Energy Levels, Wavelengths	Exp	309
$W^{27+-29+}$	Energy Levels, Wavelengths	Exp	309
$W^{65+-71+}$	Energy Levels, Wavelengths	Exp	309

W ⁶²⁺	Energy Levels, Wavelengths	Th	310
W ⁶³⁺	Energy Levels, Wavelengths	Th	310
W ⁷¹⁺	Energy Levels, Wavelengths	Th	310
W ^{64+−71+}	Energy Levels, Wavelengths	Exp	311
W ^{66+−71+}	Energy Levels, Wavelengths	Exp	311
W ¹³⁺	Energy Levels, Wavelengths	Exp	312
W ²⁸⁺	Energy Levels, Wavelengths	Exp	312
W ^{40+−71+}	Energy Levels, Wavelengths	Exp	312
W ²⁷⁺	Energy Levels, Wavelengths	Th	324
W ⁴³⁺	Energy Levels, Wavelengths	Th	324
W ⁴⁴⁺	Energy Levels, Wavelengths	Th	324
W ⁴⁵⁺	Energy Levels, Wavelengths	Th	324
W ⁶¹⁺	Energy Levels, Wavelengths	Th	324
W ⁶²⁺	Energy Levels, Wavelengths	Th	324
W ⁶³⁺	Energy Levels, Wavelengths	Th	324
W ⁶⁹⁺	Energy Levels, Wavelengths	Th	324
W ⁷⁰⁺	Energy Levels, Wavelengths	Th	324
W ⁷¹⁺	Energy Levels, Wavelengths	Th	324
W ⁵⁶⁺	Energy Levels, Wavelengths	Th	326
W ⁶⁰⁺	Energy Levels, Wavelengths	Th	326
W ^{61+−64+}	Energy Levels, Wavelengths	Th	326
W ⁶⁺	Energy Levels, Wavelengths	Th	327
W ³⁷⁺	Energy Levels, Wavelengths	Th	330
W ^{47+−55+}	Energy Levels, Wavelengths	Exp	339
W ²⁴⁺	Energy Levels, Wavelengths	Th	340
W ^{41+−45+}	Energy Levels, Wavelengths	Exp	351
W ⁴⁴⁺	Energy Levels, Wavelengths	Th	356
W ^{47+−61+}	Energy Levels, Wavelengths	Th	362
W ^{7+−27+}	Energy Levels, Wavelengths	E/T	364
W ^{17+−18+}	Energy Levels, Wavelengths	E/T	366
W	Energy Levels, Wavelengths	Th	368
W ²⁶⁺	Energy Levels, Wavelengths	Th	369
W ²⁷⁺	Energy Levels, Wavelengths	Th	376
W ⁴⁶⁺	Energy Levels, Wavelengths	E/T	458
W ⁶¹⁺	Trans. prob., Oscill. Strengths	Th	533
W ⁶²⁺	Trans. prob., Oscill. Strengths	Th	533
W ⁶⁺	Trans. prob., Oscill. Strengths	Th	534
W ^{47+−55+}	Trans. prob., Oscill. Strengths	Th	540
W ²⁴⁺	Trans. prob., Oscill. Strengths	Th	541
W ⁴⁴⁺	Trans. prob., Oscill. Strengths	Th	550
W ^{47+−61+}	Trans. prob., Oscill. Strengths	Th	553
W	Trans. prob., Oscill. Strengths	Th	554
W ²⁶⁺	Trans. prob., Oscill. Strengths	Th	555
W ²⁷⁺	Trans. prob., Oscill. Strengths	Th	558
W ^{7+−27+}	Energy Levels, Wavelengths	E/T	582
W ^{19+−33+}	Energy Levels, Wavelengths	Exp	584
W ^{23+−30+}	Energy Levels, Wavelengths	Exp	584
W ²⁶⁺	Energy Levels, Wavelengths	Exp	584
W ^{41+−45+}	Energy Levels, Wavelengths	Exp	584
W ³⁷⁺	Energy Levels, Wavelengths	Th	622
W ²⁴⁺	Energy Levels, Wavelengths	Th	624
W ^{29+−37+}	Energy Levels, Wavelengths	Th	626
W ²⁶⁺	Energy Levels, Wavelengths	Exp	628
W ^{26+−33+}	Energy Levels, Wavelengths	Exp	628
W ²⁷⁺	Energy Levels, Wavelengths	E/T	629
W ¹⁴⁺	Energy Levels, Wavelengths	Th	631
W ⁵⁺	Energy Levels, Wavelengths	Th	636
W ¹¹⁺	Energy Levels, Wavelengths	Th	636
W ¹³⁺	Energy Levels, Wavelengths	Th	636

W ²⁷⁺	Energy Levels, Wavelengths	Th	636
W ⁴⁵⁺	Energy Levels, Wavelengths	Th	636
W ⁶⁵⁺	Energy Levels, Wavelengths	Th	636
W ⁷³⁺	Energy Levels, Wavelengths	Th	636
W ^{62+−66+}	Energy Levels, Wavelengths	E/T	639
W ³⁷⁺	Energy Levels, Wavelengths	Th	646
W ⁵⁺	Energy Levels, Wavelengths	Th	649
W ⁶⁴⁺	Energy Levels, Wavelengths	Exp	655
W ⁷¹⁺	Energy Levels, Wavelengths	Th	662
W ⁴⁺	Energy Levels, Wavelengths	Th	674
W ^{4+−5+}	Energy Levels, Wavelengths	Th	674
W ⁴⁺	Energy Levels, Wavelengths	Th	676
W ^{29+−43+}	Energy Levels, Wavelengths	Th	680
W ⁶⁺	Energy Levels, Wavelengths	Th	712
W ²⁹⁺	Energy Levels, Wavelengths	Th	737
W ³⁶⁺	Energy Levels, Wavelengths	Th	737
W ³⁷⁺	Trans. prob., Oscill. Strengths	Th	801
W ²⁴⁺	Trans. prob., Oscill. Strengths	Th	804
W ^{29+−37+}	Trans. prob., Oscill. Strengths	Th	806
W ¹⁴⁺	Trans. prob., Oscill. Strengths	Th	809
W ^{44+−47+}	Trans. prob., Oscill. Strengths	Th	816
W ³⁷⁺	Trans. prob., Oscill. Strengths	Th	823
W ⁵⁺	Trans. prob., Oscill. Strengths	Th	826
W ⁷¹⁺	Trans. prob., Oscill. Strengths	Th	834
W ⁴⁺	Trans. prob., Oscill. Strengths	Th	838
W ⁴⁺	Trans. prob., Oscill. Strengths	Th	839
W ⁵⁺	Trans. prob., Oscill. Strengths	Th	843
W ³⁺	Trans. prob., Oscill. Strengths	Th	844
W ^{29+−43+}	Trans. prob., Oscill. Strengths	Th	845
W ⁺	Trans. prob., Oscill. Strengths	Exp	869
W ²⁹⁺	Trans. prob., Oscill. Strengths	Th	873
W ³⁶⁺	Trans. prob., Oscill. Strengths	Th	873
Re ^{0+−1+}	Energy Levels, Wavelengths	Th	93
Re	Energy Levels, Wavelengths	Exp	168
Re-Bi	Energy Levels, Wavelengths	E/T	170
Re	Energy Levels, Wavelengths	E/T	172
Re ⁺	Energy Levels, Wavelengths	E/T	172
Re	Energy Levels, Wavelengths	Th	444
Re ⁺	Energy Levels, Wavelengths	E/T	445
Re ⁶⁺	Energy Levels, Wavelengths	Th	712
Re	Trans. prob., Oscill. Strengths	Exp	840
Os ^{0+−1+}	Energy Levels, Wavelengths	Th	93
Os ⁴⁶⁺	Energy Levels, Wavelengths	E/T	306
Os ⁴⁶⁺	Energy Levels, Wavelengths	Th	356
Os ⁴⁶⁺	Energy Levels, Wavelengths	Th	550
Os ¹⁸⁺	Energy Levels, Wavelengths	Th	614
Os ¹⁸⁺	Energy Levels, Wavelengths	Th	631
Os ⁷⁴⁺	Energy Levels, Wavelengths	Th	753
Os ¹⁸⁺	Trans. prob., Oscill. Strengths	Th	794
Os ¹⁸⁺	Trans. prob., Oscill. Strengths	Th	809
Ir ^{0+−1+}	Energy Levels, Wavelengths	Th	93
Ir ^{16+−17+}	Energy Levels, Wavelengths	Th	301
Pt [−]	Energy Levels, Wavelengths	Th	10
Pt ⁶⁶⁺	Trans. prob., Oscill. Strengths	Th	217
Pt ⁴⁸⁺	Energy Levels, Wavelengths	E/T	306
Pt [−]	Energy Levels, Wavelengths	Th	370
Pt ²⁰⁺	Energy Levels, Wavelengths	Th	631
Pt ²⁰⁺	Trans. prob., Oscill. Strengths	Th	809
Au [−]	Energy Levels, Wavelengths	Th	10

Au ⁶⁶⁺	Energy Levels, Wavelengths	Th	55
Au ⁶⁹⁺	Energy Levels, Wavelengths	Th	56
Au	Energy Levels, Wavelengths	Exp	59
Au ⁴⁸⁺⁻⁵⁰⁺	Energy Levels, Wavelengths	Th	69
Au ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th	93
Au ⁵³⁺⁻⁶⁹⁺	Energy Levels, Wavelengths	E/T	106
Au ⁷⁶⁺	Energy Levels, Wavelengths	Th	118
Au ⁶⁶⁺	Trans. prob., Oscill. Strengths	Th	206
Au	Trans. prob., Oscill. Strengths	Th	266
Au ⁴⁹⁺	Energy Levels, Wavelengths	E/T	306
Au ⁴⁵⁺⁻⁵⁸⁺	Energy Levels, Wavelengths	Exp	319
Au ⁷⁴⁺	Energy Levels, Wavelengths	Th	348
Au ⁴⁹⁺	Energy Levels, Wavelengths	Th	356
Au ⁻	Energy Levels, Wavelengths	Th	370
Au	Energy Levels, Wavelengths	Exp	371
Au ⁴¹⁺⁻⁵³⁺	Energy Levels, Wavelengths	E/T	378
Au ⁴²⁺⁻⁵²⁺	Energy Levels, Wavelengths	E/T	378
Au ⁵⁰⁺	Energy Levels, Wavelengths	Th	398
Au	Energy Levels, Wavelengths	Th	402
Au ⁷⁷⁺	Energy Levels, Wavelengths	Exp	404
Au ⁷⁸⁺	Energy Levels, Wavelengths	Exp	404
Au ⁵¹⁺	Energy Levels, Wavelengths	Th	419
Au ⁶⁸⁺	Energy Levels, Wavelengths	Th	424
Au ⁶⁹⁺	Energy Levels, Wavelengths	Th	424
Au ⁵¹⁺	Energy Levels, Wavelengths	E/T	458
Au ⁷⁷⁺	Trans. prob., Oscill. Strengths	E/T	531
Au ⁷⁴⁺	Trans. prob., Oscill. Strengths	Th	546
Au ⁴⁹⁺	Trans. prob., Oscill. Strengths	Th	550
Au ⁵²⁺	Energy Levels, Wavelengths	E/T	585
Au ⁶⁰⁺	Energy Levels, Wavelengths	E/T	585
Au ²¹⁺	Energy Levels, Wavelengths	Th	614
Au	Energy Levels, Wavelengths	Exp	698
Au ⁴⁸⁺⁻⁵⁰⁺	Energy Levels, Wavelengths	Th	724
Au ⁶⁶⁺	Energy Levels, Wavelengths	Th	724
Au ⁶⁷⁺	Energy Levels, Wavelengths	Th	724
Au ⁶⁸⁺	Energy Levels, Wavelengths	Th	724
Au ⁷⁴⁺	Energy Levels, Wavelengths	Th	724
Au ⁷⁵⁺	Energy Levels, Wavelengths	Th	724
Au ⁷⁶⁺	Energy Levels, Wavelengths	Th	724
Au ⁶⁹⁺	Energy Levels, Wavelengths	Th	726
Au ²¹⁺	Trans. prob., Oscill. Strengths	Th	794
Au ⁶⁶⁺	Trans. prob., Oscill. Strengths	Th	868
Au ⁶⁷⁺	Trans. prob., Oscill. Strengths	Th	868
Au ⁶⁹⁺	Trans. prob., Oscill. Strengths	Th	870
Hg	Energy Levels, Wavelengths	Th	14
Hg ⁷⁷⁺	Energy Levels, Wavelengths	Th	80
Hg ⁷⁵⁺	Energy Levels, Wavelengths	Th	96
Hg	Energy Levels, Wavelengths	Th	118
Hg	Energy Levels, Wavelengths	Exp	155
Hg ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp	155
Hg ⁺	Energy Levels, Wavelengths	Exp	155
Hg	Energy Levels, Wavelengths	Exp	168
Hg ⁷⁵⁺	Trans. prob., Oscill. Strengths	Th	230
Hg	Energy Levels, Wavelengths	E/T	271
Hg ⁺	Energy Levels, Wavelengths	Th	400
Hg	Energy Levels, Wavelengths	Th	402
Hg ⁶⁹⁺	Energy Levels, Wavelengths	Th	402
Hg ⁷⁷⁺	Energy Levels, Wavelengths	Th	402
Hg	Trans. prob., Oscill. Strengths	Th	578

Hg ²²⁺	Energy Levels, Wavelengths	Th	631
Hg ⁷⁷⁺	Energy Levels, Wavelengths	Th	635
Hg ⁺	Energy Levels, Wavelengths	Exp	681
Hg ²⁺⁻³⁺	Energy Levels, Wavelengths	Th	712
Hg ³⁺	Energy Levels, Wavelengths	Th	712
Hg ²²⁺	Trans. prob., Oscill. Strengths	Th	809
Hg	Trans. prob., Oscill. Strengths	Th	812
Tl	Energy Levels, Wavelengths	Th	395
Tl	Energy Levels, Wavelengths	Th	402
Tl-At	Energy Levels, Wavelengths	Th	656
Tl ⁻	Energy Levels, Wavelengths	Th	670
Tl ⁺	Energy Levels, Wavelengths	Exp	681
Pb	Energy Levels, Wavelengths	Th	93
Pb ⁷⁵⁺	Energy Levels, Wavelengths	E/T	97
Pb	Energy Levels, Wavelengths	Exp	168
Pb ⁵⁰⁺	Energy Levels, Wavelengths	Exp	168
Pb ⁵²⁺	Energy Levels, Wavelengths	E/T	306
Pb ⁵²⁺	Energy Levels, Wavelengths	Th	356
Pb ⁵²⁺	Trans. prob., Oscill. Strengths	Th	550
Pb ²⁴⁺	Energy Levels, Wavelengths	Th	631
Pb ⁻	Energy Levels, Wavelengths	Th	670
Pb	Energy Levels, Wavelengths	Exp	698
Pb ⁸⁰⁺	Energy Levels, Wavelengths	Th	753
Pb ²⁴⁺	Trans. prob., Oscill. Strengths	Th	809
Bi ⁺	Energy Levels, Wavelengths	Th	93
Bi ⁷⁴⁺⁻⁸⁰⁺	Energy Levels, Wavelengths	E/T	106
Bi ⁸²⁺	Energy Levels, Wavelengths	Exp	297
Bi ⁵³⁺	Energy Levels, Wavelengths	E/T	306
Bi ⁵³⁺	Energy Levels, Wavelengths	Th	356
Bi ⁵³⁺	Trans. prob., Oscill. Strengths	Th	550
Bi ²⁵⁺	Energy Levels, Wavelengths	Th	614
Bi ⁸⁰⁺	Energy Levels, Wavelengths	Th	635
Bi	Energy Levels, Wavelengths	Exp	698
Bi ⁷⁹⁺	Energy Levels, Wavelengths	Th	718
Bi ²⁵⁺	Trans. prob., Oscill. Strengths	Th	794
Po ²⁶⁺	Energy Levels, Wavelengths	Th	631
Po ⁻	Energy Levels, Wavelengths	Th	670
Po ²⁶⁺	Trans. prob., Oscill. Strengths	Th	809
At ⁻	Energy Levels, Wavelengths	E/T	391
At	Energy Levels, Wavelengths	E/T	391
At ⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T	391
At	Trans. prob., Oscill. Strengths	Th	569
At ⁻	Energy Levels, Wavelengths	Th	670
Rn	Energy Levels, Wavelengths	Th	14
Rn	Energy Levels, Wavelengths	Th	402
Rn	Trans. prob., Oscill. Strengths	Th	578
Rn ⁸⁴⁺	Energy Levels, Wavelengths	Th	753
Fr	Energy Levels, Wavelengths	Th	28
Fr	Energy Levels, Wavelengths	Th	157
Fr	Energy Levels, Wavelengths	Th	400
Fr	Energy Levels, Wavelengths	Th	402
Fr ⁸⁴⁺	Energy Levels, Wavelengths	Th	635
Fr	Energy Levels, Wavelengths	Th	663
Ra	Energy Levels, Wavelengths	Th	14
Ra ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T	170
Ra	Energy Levels, Wavelengths	Th	402
Ra	Trans. prob., Oscill. Strengths	Th	578
Ra ³¹⁺	Energy Levels, Wavelengths	Th	614
Ra ³⁰⁺	Energy Levels, Wavelengths	Th	631

Ra ³¹⁺	Trans. prob., Oscill. Strengths	Th	794
Ra ³⁰⁺	Trans. prob., Oscill. Strengths	Th	809
Ac ^{+−2+}	Energy Levels, Wavelengths	Th	712
Th ⁸⁷⁺	Energy Levels, Wavelengths	Th	80
Th ^{0+−2+}	Energy Levels, Wavelengths	Exp	168
Th	Energy Levels, Wavelengths	E/T	170
Th ⁶⁰⁺	Energy Levels, Wavelengths	Th	356
Th	Energy Levels, Wavelengths	Th	402
Th ⁶¹⁺	Energy Levels, Wavelengths	Th	402
Th ⁷⁹⁺	Energy Levels, Wavelengths	Th	402
Th ⁸⁷⁺	Energy Levels, Wavelengths	Th	402
Th ⁶⁰⁺	Trans. prob., Oscill. Strengths	Th	550
Th ³²⁺	Energy Levels, Wavelengths	Th	631
Th ⁸⁷⁺	Energy Levels, Wavelengths	Th	635
Th ³²⁺	Trans. prob., Oscill. Strengths	Th	809
Pa ⁸⁹⁺	Energy Levels, Wavelengths	Th	43
U ⁹⁰⁺	Energy Levels, Wavelengths	Th	43
U ⁸⁹⁺	Energy Levels, Wavelengths	Th	80
U ⁸⁷⁺	Energy Levels, Wavelengths	Th	96
U ⁸⁹⁺	Energy Levels, Wavelengths	Th	118
U ⁹⁰⁺	Energy Levels, Wavelengths	E/T	160
U ⁸⁷⁺	Trans. prob., Oscill. Strengths	Th	230
U ⁶²⁺	Energy Levels, Wavelengths	E/T	306
U ⁶²⁺	Energy Levels, Wavelengths	Th	356
U ⁶²⁺	Trans. prob., Oscill. Strengths	Th	550
U ⁹¹⁺	Trans. prob., Oscill. Strengths	Th	551
U ⁹¹⁺	Trans. prob., Oscill. Strengths	Th	577
U ⁹¹⁺	Trans. prob., Oscill. Strengths	Th	579
U ^{0+−1+}	Energy Levels, Wavelengths	Exp	604
U ³⁴⁺	Energy Levels, Wavelengths	Th	614
U ⁹¹⁺	Energy Levels, Wavelengths	Th	617
U ³⁴⁺	Energy Levels, Wavelengths	Th	631
U ⁸⁸⁺	Energy Levels, Wavelengths	Th	632
U ⁹⁺	Energy Levels, Wavelengths	Th	636
U ⁸⁹⁺	Energy Levels, Wavelengths	Th	662
U ⁵⁺	Energy Levels, Wavelengths	Th	712
U ⁹⁰⁺	Energy Levels, Wavelengths	Th	753
U ³⁴⁺	Trans. prob., Oscill. Strengths	Th	794
U ³⁴⁺	Trans. prob., Oscill. Strengths	Th	809
U ⁸⁸⁺	Trans. prob., Oscill. Strengths	Th	811
U ⁸⁹⁺	Trans. prob., Oscill. Strengths	Th	834
Pu ⁺	Trans. prob., Oscill. Strengths	Th	267
Am ⁺	Energy Levels, Wavelengths	E/T	151
Cm	Energy Levels, Wavelengths	Exp	168
Cm ⁺	Energy Levels, Wavelengths	Exp	168
No	Energy Levels, Wavelengths	Th	14
Rg	Energy Levels, Wavelengths	Th	402
Uus	Energy Levels, Wavelengths	E/T	391
Uus ^{0+−4+}	Energy Levels, Wavelengths	E/T	391
Uus	Trans. prob., Oscill. Strengths	Th	569
Uuo	Energy Levels, Wavelengths	Th	402
D	Energy Levels, Wavelengths	E/T	27
D	Energy Levels, Wavelengths	Th	83
D	Energy Levels, Wavelengths	E/T	170
D	Energy Levels, Wavelengths	Th	171
D	Energy Levels, Wavelengths	Exp	307
T	Energy Levels, Wavelengths	E/T	27
H Z= 1-10	Energy Levels, Wavelengths	Th	58
H Z= 1-10	Energy Levels, Wavelengths	Th	62

H Z= 1-12	Energy Levels, Wavelengths	Th	63
H Z= 16-32	Energy Levels, Wavelengths	Exp	125
H Z= 1-100	Energy Levels, Wavelengths	Th	136
H Z= 1-26	Energy Levels, Wavelengths	Th	156
H Z= 1-2	Energy Levels, Wavelengths	E/T	170
H Z= 1-100	Energy Levels, Wavelengths	Th	171
H Z= 1-100	Trans. prob., Oscill. Strengths	Th	258
H Z= 8-92	Energy Levels, Wavelengths	Exp	297
H Z= 1-100	Energy Levels, Wavelengths	Th	334
H Z= 1-100	Energy Levels, Wavelengths	Th	349
H Z= 1-100	Energy Levels, Wavelengths	Th	393
H Z= 1-10	Trans. prob., Oscill. Strengths	Th	559
H Z= 1-10	Energy Levels, Wavelengths	Th	675
He Z= 1-10	Energy Levels, Wavelengths	Th	9
He Z= 2-4	Energy Levels, Wavelengths	Th	19
He Z= 2-10	Energy Levels, Wavelengths	Th	23
He Z= 2-20	Energy Levels, Wavelengths	Th	25
He Z= 2-17	Energy Levels, Wavelengths	Th	35
He Z= 54-71	Energy Levels, Wavelengths	Th	43
He Z= 86-93	Energy Levels, Wavelengths	Th	43
He Z= 3-12	Energy Levels, Wavelengths	Th	52
He Z= 1-10	Energy Levels, Wavelengths	Th	73
He Z= 28-36	Energy Levels, Wavelengths	Th	104
He Z= 62-68	Energy Levels, Wavelengths	Th	104
He Z= 15-39	Energy Levels, Wavelengths	Exp	125
He Z= 2-5	Energy Levels, Wavelengths	E/T	144
He Z= 20-100	Energy Levels, Wavelengths	E/T	160
He Z= 18-28 step 2	Trans. prob., Oscill. Strengths	Th	192
He Z= 3-6	Energy Levels, Wavelengths	Th	268
He Z= 2-10	Energy Levels, Wavelengths	Th	315
He Z= 3-17	Energy Levels, Wavelengths	Th	316
He Z= 21-25	Energy Levels, Wavelengths	Th	316
He Z= 29-35	Energy Levels, Wavelengths	Th	316
He Z= 3-8	Energy Levels, Wavelengths	Th	329
He Z= 3-6	Energy Levels, Wavelengths	Th	343
He Z= 2-28	Energy Levels, Wavelengths	Th	355
He Z= 7-8	Energy Levels, Wavelengths	E/T	472
He Z= 28-92	Trans. prob., Oscill. Strengths	Th	536
He Z= 3-6	Trans. prob., Oscill. Strengths	Th	543
He Z= 1-10	Energy Levels, Wavelengths	Th	607
He Z= 7-12	Energy Levels, Wavelengths	Th	640
He Z= 3-6	Energy Levels, Wavelengths	Th	689
He Z= 4-10	Energy Levels, Wavelengths	Th	710
He Z= 12-14	Energy Levels, Wavelengths	Th	710
He Z= 18-26 step 2	Energy Levels, Wavelengths	Th	710
He Z= 4-10	Trans. prob., Oscill. Strengths	Th	862
He Z= 12-14	Trans. prob., Oscill. Strengths	Th	862
He Z= 18-26 step 2	Trans. prob., Oscill. Strengths	Th	862
Li Z= 3-20	Energy Levels, Wavelengths	Th	25
Li Z= 3-92	Energy Levels, Wavelengths	Th	49
Li Z= 10-92	Energy Levels, Wavelengths	Th	49
Li Z= 3-14	Energy Levels, Wavelengths	Th	72
Li Z= 3-50	Energy Levels, Wavelengths	Th	72
Li Z= 10-92	Energy Levels, Wavelengths	Th	80
Li Z= 4-36	Energy Levels, Wavelengths	Th	280
Li Z= 10-100	Energy Levels, Wavelengths	Th	350
Li Z= 11-20	Energy Levels, Wavelengths	Th	381
Li Z= 14-54	Energy Levels, Wavelengths	Th	399
Li Z= 4-36	Trans. prob., Oscill. Strengths	Th	512

Li Z= 6-10	Trans. prob., Oscill. Strengths	Th	515
Li Z= 14-54	Trans. prob., Oscill. Strengths	Th	572
Li Z= 3-8	Energy Levels, Wavelengths	Th	586
Li Z= 18-36	Energy Levels, Wavelengths	Th	633
Li Z= 4-55	Energy Levels, Wavelengths	Th	635
Be Z= 4-20	Energy Levels, Wavelengths	Th	25
Be Z= 3-10	Energy Levels, Wavelengths	Th	293
Be Z= 5-12	Energy Levels, Wavelengths	Th	632
Be Z= 14-34 step 2	Energy Levels, Wavelengths	Th	632
Be Z= 46-56 step 2	Energy Levels, Wavelengths	Th	632
Be Z= 70-90 step 4	Energy Levels, Wavelengths	Th	632
Be Z= 4-8	Energy Levels, Wavelengths	Th	648
Be Z= 5-12	Trans. prob., Oscill. Strengths	Th	811
Be Z= 14-34 step 2	Trans. prob., Oscill. Strengths	Th	811
Be Z= 46-56 step 2	Trans. prob., Oscill. Strengths	Th	811
Be Z= 70-90 step 4	Trans. prob., Oscill. Strengths	Th	811
B Z= 6-42	Energy Levels, Wavelengths	E/T	71
B Z= 7-9	Energy Levels, Wavelengths	Th	433
B Z= 7-30	Energy Levels, Wavelengths	Th	623
B Z= 7-45	Energy Levels, Wavelengths	Th	750
B Z= 7-30	Trans. prob., Oscill. Strengths	Th	802
C Z= 6-42	Energy Levels, Wavelengths	E/T	71
C Z= 6-30	Trans. prob., Oscill. Strengths	Th	265
C Z= 9-17	Energy Levels, Wavelengths	E/T	705
C Z= 9-28	Energy Levels, Wavelengths	E/T	705
C Z= 19-28	Energy Levels, Wavelengths	E/T	705
C Z= 9-54	Energy Levels, Wavelengths	Th	771
C Z= 9-28	Trans. prob., Oscill. Strengths	Th	860
N Z= 50-92	Energy Levels, Wavelengths	E/T	97
N Z= 13-16	Energy Levels, Wavelengths	Exp	154
N Z= 18-20	Energy Levels, Wavelengths	Exp	154
O Z= 8-42	Energy Levels, Wavelengths	Th	384
O Z= 13-17	Energy Levels, Wavelengths	E/T	472
O Z= 20-30	Trans. prob., Oscill. Strengths	Th	564
F Z= 17-59	Energy Levels, Wavelengths	Th	161
Ne Z= 17-59	Energy Levels, Wavelengths	Th	161
Ne Z= 13-100	Energy Levels, Wavelengths	Th	346
Ne Z= 11-36	Energy Levels, Wavelengths	Th	388
Ne Z= 14-17	Energy Levels, Wavelengths	E/T	458
Ne Z= 13-109	Trans. prob., Oscill. Strengths	Th	545
Ne Z= 35-109	Trans. prob., Oscill. Strengths	Th	545
Ne Z= 11-36	Trans. prob., Oscill. Strengths	Th	568
Na Z= 17-59	Energy Levels, Wavelengths	Th	161
Mg Z= 12-17	Trans. prob., Oscill. Strengths	Th	218
Mg Z= 19-31	Trans. prob., Oscill. Strengths	Th	218
Mg Z= 12-80	Trans. prob., Oscill. Strengths	Th	257
Mg Z= 21-26	Energy Levels, Wavelengths	E/T	472
Mg Z= 12-16	Trans. prob., Oscill. Strengths	Th	561
Mg Z= 27-29	Trans. prob., Oscill. Strengths	E/T	563
Al Z= 18-40	Energy Levels, Wavelengths	Th	377
Al Z= 25-29	Trans. prob., Oscill. Strengths	E/T	835
Si Z= 26-28	Trans. prob., Oscill. Strengths	Th	227
Si Z= 18-40	Energy Levels, Wavelengths	Th	377
Si Z= 15-19	Energy Levels, Wavelengths	Th	621
Si Z= 15-19	Trans. prob., Oscill. Strengths	Th	799
Si Z= 25-29	Trans. prob., Oscill. Strengths	E/T	835
P Z= 26-28	Trans. prob., Oscill. Strengths	Th	227
P Z= 18-40	Energy Levels, Wavelengths	Th	377
P Z= 25-29	Trans. prob., Oscill. Strengths	E/T	835

S Z= 26-28	Trans. prob., Oscill. Strengths	Th	227
S Z= 18-40	Energy Levels, Wavelengths	Th	377
S Z= 25-29	Trans. prob., Oscill. Strengths	E/T	835
Cl Z= 18-40	Energy Levels, Wavelengths	Th	377
Ar Z= 17-19	Energy Levels, Wavelengths	Th	361
K Z= 22-26	Energy Levels, Wavelengths	Th	405
K Z= 72-74	Energy Levels, Wavelengths	E/T	585
K Z= 19-30	Energy Levels, Wavelengths	Th	721
V Z= 24-30	Energy Levels, Wavelengths	Th	721
Fe Z= 72-73	Energy Levels, Wavelengths	E/T	378
Co Z= 72-73	Energy Levels, Wavelengths	E/T	378
Co Z= 72-74	Energy Levels, Wavelengths	E/T	585
Ni Z= 72-73	Energy Levels, Wavelengths	E/T	378
Ni Z= 72-73	Energy Levels, Wavelengths	E/T	378
Cu Z= 72-73	Energy Levels, Wavelengths	E/T	378
Zn Z= 32-100	Energy Levels, Wavelengths	Th	86
Zn Z= 33-47	Energy Levels, Wavelengths	Th	86
Zn Z= 47-92	Energy Levels, Wavelengths	Th	86
Zn Z= 30-92	Energy Levels, Wavelengths	Th	91
Zn Z= 51-92	Energy Levels, Wavelengths	Th	91
Zn Z= 32-100	Trans. prob., Oscill. Strengths	Th	223
Zn Z= 30-92	Trans. prob., Oscill. Strengths	Th	228
Zn Z= 72-73	Energy Levels, Wavelengths	E/T	378
Zn Z= 48-54	Energy Levels, Wavelengths	Th	382
Zn Z= 30-66	Trans. prob., Oscill. Strengths	Th	529
Zn Z= 48-54	Trans. prob., Oscill. Strengths	Th	560
Ga Z= 72-73	Energy Levels, Wavelengths	E/T	378
Ga Z= 68-79	Energy Levels, Wavelengths	Th	684
Ga Z= 81-95 step 2	Energy Levels, Wavelengths	Th	684
Ga Z= 33-41	Energy Levels, Wavelengths	Th	717
Ga Z= 70-92	Energy Levels, Wavelengths	Th	717
Ga Z= 68-79	Trans. prob., Oscill. Strengths	Th	846
Ga Z= 75-79	Trans. prob., Oscill. Strengths	Th	846
Ga Z= 81-95 step 2	Trans. prob., Oscill. Strengths	Th	846
Ga Z= 32-36	Trans. prob., Oscill. Strengths	Th	865
Ge Z= 72-73	Energy Levels, Wavelengths	E/T	378
As Z= 72-73	Energy Levels, Wavelengths	E/T	378
Se Z= 72-73	Energy Levels, Wavelengths	E/T	378
Br Z= 72-73	Energy Levels, Wavelengths	E/T	378
Kr Z= 72-73	Energy Levels, Wavelengths	E/T	378
Rb Z= 72-89	Energy Levels, Wavelengths	Th	367
Rb Z= 72-73	Energy Levels, Wavelengths	E/T	378
Sr Z= 43-68	Energy Levels, Wavelengths	Th	143
Sr Z= 72-89	Energy Levels, Wavelengths	Th	367
Sr Z= 72-73	Energy Levels, Wavelengths	E/T	378
Y Z= 72-89	Energy Levels, Wavelengths	Th	367
Zr Z= 72-89	Energy Levels, Wavelengths	Th	367
Nb Z= 72-89	Energy Levels, Wavelengths	Th	367
Mo Z= 72-89	Energy Levels, Wavelengths	Th	367
Tc Z= 72-89	Energy Levels, Wavelengths	Th	367
Ru Z= 49-74	Energy Levels, Wavelengths	Th	143
Ru Z= 72-89	Energy Levels, Wavelengths	Th	367
Rh Z= 52-86	Energy Levels, Wavelengths	Th	120
Rh Z= 72-89	Energy Levels, Wavelengths	Th	367
Pd Z= 52-86	Energy Levels, Wavelengths	Th	120
Pd Z= 52-86	Energy Levels, Wavelengths	Th	120
Ag Z= 52-86	Energy Levels, Wavelengths	Th	120
Ag Z= 47-57	Energy Levels, Wavelengths	Th	135
Ag Z= 47-57	Trans. prob., Oscill. Strengths	Th	251

Ag Z= 50-86	Energy Levels, Wavelengths	Th	304
Ag Z= 50-86	Trans. prob., Oscill. Strengths	Th	527
Ag Z= 60-61	Energy Levels, Wavelengths	Th	636
Ag Z= 47-92	Energy Levels, Wavelengths	Th	679
Ag Z= 47-92	Trans. prob., Oscill. Strengths	Th	842
Cd Z= 60-61	Energy Levels, Wavelengths	Th	636
In Z= 57-90	Energy Levels, Wavelengths	Th	636
Sn Z= 58-60	Energy Levels, Wavelengths	Th	636
Sn Z= 60-63	Energy Levels, Wavelengths	Th	636
Sb Z= 59-61	Energy Levels, Wavelengths	Th	636
Sb Z= 61-64	Energy Levels, Wavelengths	Th	636
Te Z= 61-64	Energy Levels, Wavelengths	Th	636
I Z= 61-64	Energy Levels, Wavelengths	Th	636
Xe Z= 62-65	Energy Levels, Wavelengths	Th	636
Cs Z= 62-65	Energy Levels, Wavelengths	Th	636
Ho Z= 72-75	Energy Levels, Wavelengths	E/T	612
Ho Z= 72-75	Trans. prob., Oscill. Strengths	Th	793
Tm Z= 70-74	Trans. prob., Oscill. Strengths	Th	836
Lu Z= 74-100	Energy Levels, Wavelengths	Th	669
Au Z= 79-83	Trans. prob., Oscill. Strengths	Th	251
Tl Z= 90-100	Energy Levels, Wavelengths	Th	636
Pb Z= 95-100	Energy Levels, Wavelengths	Th	636
Bi Z= 96-99	Energy Levels, Wavelengths	Th	636
Bi Z= 96-100	Energy Levels, Wavelengths	Th	636
Po Z= 96-99	Energy Levels, Wavelengths	Th	636
At Z= 96-100	Energy Levels, Wavelengths	Th	636
Rn Z= 97-100	Energy Levels, Wavelengths	Th	636
Fr Z= 97-101	Energy Levels, Wavelengths	Th	636

CHAPTER 3

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N²⁺	Energy Levels, Wavelengths	Th
O³⁺	Energy Levels, Wavelengths	Th

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H-Li	Energy Levels, Wavelengths	Th
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- | | | |
|-------------------|----------------------------|-----|
| Fe ¹⁰⁺ | Energy Levels, Wavelengths | Exp |
|-------------------|----------------------------|-----|
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|-------------------|----------------------------|-----|
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| Fe ¹²⁺ | Energy Levels, Wavelengths | Exp |
| Fe ¹³⁺ | Energy Levels, Wavelengths | Exp |
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|----|----------------------------|----|
| Zn | Energy Levels, Wavelengths | Th |
| Kr | Energy Levels, Wavelengths | Th |
| Sr | Energy Levels, Wavelengths | Th |
| Pd | Energy Levels, Wavelengths | Th |
| Cd | Energy Levels, Wavelengths | Th |
| Xe | Energy Levels, Wavelengths | Th |
| Ba | Energy Levels, Wavelengths | Th |
| Yb | Energy Levels, Wavelengths | Th |
| Hg | Energy Levels, Wavelengths | Th |
| Rn | Energy Levels, Wavelengths | Th |
| Ra | Energy Levels, Wavelengths | Th |
| No | Energy Levels, Wavelengths | Th |
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| Mg | Energy Levels, Wavelengths | Exp |
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| O⁶⁺ | Energy Levels, Wavelengths | E/T |
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| Kr⁴⁺ | Energy Levels, Wavelengths | E/T |
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|---------------------------|----------------------------|-----|
| H | Energy Levels, Wavelengths | Exp |
| C | Energy Levels, Wavelengths | Exp |
| Na | Energy Levels, Wavelengths | Exp |
| Mg | Energy Levels, Wavelengths | Exp |
| Al | Energy Levels, Wavelengths | Exp |
| Si | Energy Levels, Wavelengths | Exp |
| S | Energy Levels, Wavelengths | Exp |
| K | Energy Levels, Wavelengths | Exp |
| Ca⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Sc | Energy Levels, Wavelengths | Exp |
| Ti | Energy Levels, Wavelengths | Exp |
| Cr | Energy Levels, Wavelengths | Exp |
| Fe | Energy Levels, Wavelengths | Exp |
| Ni | Energy Levels, Wavelengths | Exp |
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| Kr | Energy Levels, Wavelengths | Exp |
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| D | Energy Levels, Wavelengths | E/T |
| T | Energy Levels, Wavelengths | E/T |
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| H | Energy Levels, Wavelengths | Th |
| He | Energy Levels, Wavelengths | Th |
| Li | Energy Levels, Wavelengths | Th |
| Be | Energy Levels, Wavelengths | Th |
| Ne | Energy Levels, Wavelengths | Th |
| Na | Energy Levels, Wavelengths | Th |
| Mg | Energy Levels, Wavelengths | Th |
| Ar | Energy Levels, Wavelengths | Th |
| K | Energy Levels, Wavelengths | Th |
| Ca | Energy Levels, Wavelengths | Th |
| Kr | Energy Levels, Wavelengths | Th |
| Rb | Energy Levels, Wavelengths | Th |
| Sr | Energy Levels, Wavelengths | Th |
| Xe | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
| Ba | Energy Levels, Wavelengths | Th |
| Fr | Energy Levels, Wavelengths | Th |

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Phys. Rev. A 81, 052509 (2010)
- | | | | |
|--|----------------------------|----------------------------|-----|
| | W^{55+–64+} | Energy Levels, Wavelengths | Exp |
|--|----------------------------|----------------------------|-----|
45. A. Derevianko
Theory of Magic Optical Traps for Zeeman-Insensitive Clock Transitions in Alkali-Metal Atoms
Phys. Rev. A 81, 051606 (2010)
- | | | | |
|--|-----------|----------------------------|----|
| | Li | Energy Levels, Wavelengths | Th |
| | Na | Energy Levels, Wavelengths | Th |
| | K | Energy Levels, Wavelengths | Th |
| | Rb | Energy Levels, Wavelengths | Th |
| | Cs | Energy Levels, Wavelengths | Th |

46. G. P. Gupta, A. Z. Msezane
Fine-Structure Energy Levels and Radiative Decay Rates in Al-like Vanadium
 Phys. Scr. 81, 045302 (2010)

V¹⁰⁺ Energy Levels, Wavelengths Th

47. L.-Y. Tang, Z.-C. Yan, T.-Y. Shi, J. Mitroy
Dynamic Dipole Polarizabilities of the Li Atom and the Be⁺ Ion
 Phys. Rev. A 81, 042521 (2010)

Li Energy Levels, Wavelengths Th

Be⁺ Energy Levels, Wavelengths Th

48. B. K. Mani, D. Angom
Atomic Properties Calculated by Relativistic Coupled-Cluster Theory Without Truncation: Hyperfine Constants of Mg⁺, Ca⁺, Sr⁺, and Ba⁺
 Phys. Rev. A 81, 042514 (2010)

Mg⁺ Energy Levels, Wavelengths Th

Ca⁺ Energy Levels, Wavelengths Th

Sr⁺ Energy Levels, Wavelengths Th

Ba⁺ Energy Levels, Wavelengths Th

49. Y. S. Kozhedub, A. V. Volotka, A. N. Artemyev, D. A. Glazov, G. Plunien, V. M. Shabaev, I. I. Tupitsyn, Th. Stöhlker
Relativistic Recoil, Electron-Correlation, and QED Effects on the 2p_j-2s Transition Energies in Li-like Ions
 Phys. Rev. A 81, 042513 (2010)

Li Z= 3-92 Energy Levels, Wavelengths Th

Li Z= 10-92 Energy Levels, Wavelengths Th

Ne⁷⁺ Energy Levels, Wavelengths Th

P¹²⁺ Energy Levels, Wavelengths Th

Ar¹⁵⁺ Energy Levels, Wavelengths Th

Ca¹⁷⁺ Energy Levels, Wavelengths Th

Sc¹⁸⁺ Energy Levels, Wavelengths Th

Fe²³⁺ Energy Levels, Wavelengths Th

Ni²⁵⁺ Energy Levels, Wavelengths Th

Zn²⁷⁺ Energy Levels, Wavelengths Th

Kr³³⁺ Energy Levels, Wavelengths Th

Zr³⁷⁺ Energy Levels, Wavelengths Th

Ag⁴⁴⁺ Energy Levels, Wavelengths Th

Sn⁴⁷⁺ Energy Levels, Wavelengths Th

Te⁴⁹⁺ Energy Levels, Wavelengths Th

Xe⁵¹⁺ Energy Levels, Wavelengths Th

Nd⁵⁷⁺ Energy Levels, Wavelengths Th

50. M. Schäfer, M. Raunhardt, F. Merkt
Millimeter-Wave Spectroscopy and Multichannel Quantum-Defect-Theory Analysis of High Rydberg States of Xenon: The Hyperfine Structure of ¹²⁹Xe⁺ and ¹³¹Xe⁺
 Phys. Rev. A 81, 032514 (2010)

Xe Energy Levels, Wavelengths E/T

51. P. Oxley, P. Collins
Measurement of the Lithium 10p Fine Structure Interval and Absolute Energy
 Phys. Rev. A 81, 024501 (2010)

Li Energy Levels, Wavelengths Exp

52. V. A. Yerokhin, K. Pachucki
Theoretical Energies of Low-Lying States of Light Helium-like Ions
 Phys. Rev. A 81, 022507 (2010)
- | | | |
|-------------------|----------------------------|----|
| He Z= 3-12 | Energy Levels, Wavelengths | Th |
|-------------------|----------------------------|----|
53. J. A. Keele, S. L. Woods, M. E. Hanni, S. R. Lundeen, W. G. Sturuss
Optical Spectroscopy of High-L Rydberg States of Nickel
 Phys. Rev. A 81, 022506 (2010)
- | | | |
|-----------------------|----------------------------|-----|
| Ni | Energy Levels, Wavelengths | Exp |
| Ni⁺ | Energy Levels, Wavelengths | Exp |
54. W. Klopper, R. A. Bachorz, D. P. Tew, C. Hättig
Sub-meV Accuracy in First-Principles Computations of the Ionization Potentials and Electron Affinities of the Atoms H to Ne
 Phys. Rev. A 81, 022503 (2010)
- | | | |
|-------------------------|----------------------------|----|
| H⁻ | Energy Levels, Wavelengths | Th |
| H-Ne | Energy Levels, Wavelengths | Th |
| Li-F⁻ | Energy Levels, Wavelengths | Th |
55. L.-H. Hao, G. Jiang, H.-J. Hou
Effects of Valence-Valence, Core-Valence, and Core-Core Correlations on the Fine-Structure Energy Levels in Al-like Ions
 Phys. Rev. A 81, 022502 (2010)
- | | | |
|-------------------------|----------------------------|----|
| Se²¹⁺ | Energy Levels, Wavelengths | Th |
| Kr²³⁺ | Energy Levels, Wavelengths | Th |
| Zr²⁷⁺ | Energy Levels, Wavelengths | Th |
| Mo²⁹⁺ | Energy Levels, Wavelengths | Th |
| Xe⁴¹⁺ | Energy Levels, Wavelengths | Th |
| Au⁶⁶⁺ | Energy Levels, Wavelengths | Th |
56. J. H. Yang, X. L. Cheng, B. L. Deng
Detailed Level-By-Level Study of Dielectronic Recombination for Ne-like Gold
 Phys. Scr. 81, 015304 (2010)
- | | | |
|-------------------------|----------------------------|----|
| Au⁶⁹⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
57. J. Clementson, P. Beiersdorfer, G. V. Brown, M. F. Gu
Spectroscopy of M-Shell X-ray Transitions in Zn-like through Co-like W
 Phys. Scr. 81, 015301 (2010)
- | | | |
|----------------------------|----------------------------|-----|
| W⁴⁴⁺⁻⁴⁷⁺ | Energy Levels, Wavelengths | Exp |
|----------------------------|----------------------------|-----|
58. U. D. Jentschura
Self-Energy Correction to the Bound-Electron g Factor of P States
 Phys. Rev. A 81, 012512 (2010)
- | | | |
|------------------|----------------------------|----|
| H Z= 1-10 | Energy Levels, Wavelengths | Th |
|------------------|----------------------------|----|
59. S. Civiš, I. Matulková, J. Cihelka, K. Kawaguchi, V. E. Chernov, E. Yu. Buslov
Time-Resolved Fourier-Transform Infrared Emission Spectroscopy of Au in the 1800–4000-cm⁻¹ Region: Rydberg Transitions
 Phys. Rev. A 81, 012510 (2010)
- | | | |
|-----------|----------------------------|-----|
| Au | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
60. V. Jonauskas, R. Kisielius, A. Kynienė, S. Kučas, P. H. Norrington
Magnetic Dipole Transitions in 4d^N Configurations of Tungsten Ions
 Phys. Rev. A 81, 012506 (2010)

- | | | | |
|-----|---|----------------------------|-----|
| | W²⁹⁺⁻³⁷⁺ | Energy Levels, Wavelengths | E/T |
| 61. | J. Clementson, P. Beiersdorfer, M. F. Gu
X-ray Spectroscopy of E2 and M3 Transitions in Ni-like W
Phys. Rev. A 81, 012505 (2010) | | |
| | W⁴⁶⁺ | Energy Levels, Wavelengths | Exp |
| 62. | U. D. Jentschura, V. A. Yerokhin
QED Corrections of Order $\alpha(Z\alpha)^2 E_F$ to the Hyperfine Splitting of P_{1/2} and P_{3/2} States in Hydrogenlike Ions
Phys. Rev. A 81, 012503 (2010) | | |
| | H Z= 1-10 | Energy Levels, Wavelengths | Th |
| 63. | V. A. Yerokhin, U. D. Jentschura
Self-Energy Correction to the Hyperfine Splitting and the Electron g Factor in Hydrogenlike Ions
Phys. Rev. A 81, 012502 (2010) | | |
| | H Z= 1-12 | Energy Levels, Wavelengths | Th |
| 64. | N. H. Brooks, K. H. Burrell, R. C. Isler, O. Meyer, N. A. Pablant
Charge Exchange Recombination Detection of Low-Z and Medium-Z Impurities in the Extreme UV Using a Digital Lock-in Technique
Rev. Sci. Instrum. 81, 10D721 (2010) | | |
| | Ni²⁵⁺ | Energy Levels, Wavelengths | Exp |
| | Cu²⁶⁺ | Energy Levels, Wavelengths | Exp |
| 65. | T. Carette, M. Nemouchi, P. Jönsson, M. Godefroid
Saturation Spectra of Low Lying States of Nitrogen: Reconciling Experiment with Theory
Eur. Phys. J. D 60, 231-242 (2010) | | |
| | N | Energy Levels, Wavelengths | E/T |
| 66. | A. O. Lindahl, P. Andersson, C. Diehl, O. Forstner, P. Klason, D. Hanstorp
The Electron Affinity of Tungsten
Eur. Phys. J. D 60, 219-222 (2010) | | |
| | W⁻ | Energy Levels, Wavelengths | Exp |
| 67. | C.-Y. Li, X.-J. Liu, G.-W. Meng, J.-G. Wang
Theoretical Study of the Dielectronic Recombination Process of Ni¹⁷⁺ Ions
Acta Phys. Sin. 59-9, 6044-6051 (2010) | | |
| | Ni¹⁶⁺ | Energy Levels, Wavelengths | Th |
| | Ni¹⁶⁺⁻¹⁷⁺ | Energy Levels, Wavelengths | Th |
| 68. | Y. Sun, B.-C. Gou, J.-J. Zhu
Energies, Fine Structures, and Auger Widths of the High-Lying Triply Excited States of ²S(m) and ²D(m) (m=2-7) for the "Hollow Atom" Lithium
Acta Phys. Sin. 59-6, 3878-3884 (2010) | | |
| | Li | Energy Levels, Wavelengths | Th |
| 69. | C.-C. Sang, Y.-J. Wang, J.-J. Wan, X.-B. Ding, C.-Z. Dong
Theoretical Study of Radiative Recombination and the Subsequent Radiative Decay Processes in Highly Charged Au Ions
Acta Phys. Sin. 59-6, 3871-3877 (2010) | | |

- Au⁴⁸⁺⁻⁵⁰⁺** Energy Levels, Wavelengths Th
70. V. L. Sukhorukov, I. D. Petrov, B. M. Lagutin, H. Schmoranzner, W. Kielich, P. V. Demekhin, A. Ehresmann
Photoionization of Xe Near 5s Threshold: I. Theoretical Study of 5s–np Resonance Structure in 5p- Photoabsorption
 Eur. Phys. J. D 59, 151-159 (2010)
- Xe** Energy Levels, Wavelengths E/T
Xe⁰⁺⁻¹⁺ Energy Levels, Wavelengths E/T
71. J. Huang, Q. Zhao, G. Jiang
Systematical Study on Ground-State Ionization Potentials for Boron and Carbon Isoelectronic Sequences with Z = 6–42
 Commun. Theor. Phys. 54, 871-874 (2010)
- B Z= 6-42** Energy Levels, Wavelengths E/T
C Z= 6-42 Energy Levels, Wavelengths E/T
72. I. Sakho, A. Wagué
Energies for the Ground-State and for the ns (1s²ns) ²S^e, np (1s²np) ²P^o, (1sns²) ²S^e, (1s2sns) ²S^e, and (1s2snp) ²P^o Excited States of Li-like Ions
 Chin. J. Phys. 48-5, 567-591 (2010)
- Li Z= 3-14** Energy Levels, Wavelengths Th
Li Z= 3-50 Energy Levels, Wavelengths Th
73. M. Dieng, I. Sakho, M. Biaye, A. Wagué
The Intra-Shell Singlet and Triplet Doubly Excited States Energy Calculations of Helium-Like Ions Using Special Forms of the Hylleraas-Type Wave Functions
 Chin. J. Phys. 48, 38-48 (2010)
- He Z= 1-10** Energy Levels, Wavelengths Th
74. A. Müller, S. Schippers, R. A. Phaneuf, A. L. D. Kilcoyne, H. Bräuning, A. S. Schlachter, M. Lu, B. M. McLaughlin
State-Resolved Valence Shell Photoionization of Be-like Ions: Experiment and Theory
 J. Phys. B 43, 225201 (2010)
- C²⁺** Energy Levels, Wavelengths Exp
N³⁺ Energy Levels, Wavelengths Exp
O⁴⁺ Energy Levels, Wavelengths Exp
75. C. S. Harte, C. Suzuki, T. Kato, H. A. Sakaue, D. Kato, K. Sato, N. Tamura, S. Sudo, R. D'Arcy, E. Sokell, J. White, G. O'Sullivan
Tungsten Spectra Recorded at the LHD and Comparison with Calculations
 J. Phys. B 43, 205004 (2010)
- W¹⁴⁺⁻³⁷⁺** Energy Levels, Wavelengths E/T
76. T. Kantia, S. Aksela, P. Turunen, L. Partanen, H. Aksela
KLL Auger Decay of Atomic Silicon
 J. Phys. B 43, 205002 (2010)
- Si** Energy Levels, Wavelengths Exp
77. V. G. Yarzhevsky, M. Ya. Amusia, P. Bolognesi, L. Avaldi
A Study of the Ne 2s2p⁵(³P)3s and 3p Correlation Satellites up to 75 eV Above Threshold
 J. Phys. B 43, 185204 (2010)

- | | | |
|----|----------------------------|-----|
| Ne | Energy Levels, Wavelengths | Exp |
|----|----------------------------|-----|
78. J. Yanagibayashi, T. Nakano, A. Iwamae, H. Kubo, M. Hasuo, K. Itami
Highly Charged Tungsten Spectra Observed from JT-60U Plasmas at $T_e \approx 8$ and 14 keV
 J. Phys. B 43, 144013 (2010)
- | | | |
|---------------|----------------------------|-----|
| $W^{47+-48+}$ | Energy Levels, Wavelengths | Exp |
| $W^{60+-63+}$ | Energy Levels, Wavelengths | Exp |
79. J. Clementson, P. Beiersdorfer, E. W. Magee, H. S. McLean, R. D. Wood
Tungsten Spectroscopy Relevant to the Diagnostics of ITER Divertor Plasmas
 J. Phys. B 43, 144009 (2010)
- | | | |
|-------------|----------------------------|-----|
| W^{5+-7+} | Energy Levels, Wavelengths | Exp |
|-------------|----------------------------|-----|
80. U. I. Safronova, A. S. Safronova, W. R. Johnson
Relativistic Many-Body Calculations of Dielectronic Satellite Spectra Created by Autoionizing $1s2l2l'$ States in Li-like Ions
 J. Phys. B 43, 144001 (2010)
- | | | |
|--------------------|----------------------------|----|
| Li Z= 10-92 | Energy Levels, Wavelengths | Th |
| Fe^{23+} | Energy Levels, Wavelengths | Th |
| Mo^{39+} | Energy Levels, Wavelengths | Th |
| Pr^{56+} | Energy Levels, Wavelengths | Th |
| W^{71+} | Energy Levels, Wavelengths | Th |
| Hg^{77+} | Energy Levels, Wavelengths | Th |
| Th^{87+} | Energy Levels, Wavelengths | Th |
| U^{89+} | Energy Levels, Wavelengths | Th |
81. A. Müller, S. Schippers, R. A. Phaneuf, S. W. J. Scully, A. Aguilar, C. Cisneros, M. F. Gharaibeh, A. S. Schlachter, B. M. McLaughlin
K-Shell Photoionization of Ground-State Li-like Boron Ions [B^{2+}]: Experiment and Theory
 J. Phys. B 43, 135602 (2010)
- | | | |
|----------|----------------------------|-----|
| B^{2+} | Energy Levels, Wavelengths | E/T |
|----------|----------------------------|-----|
82. P. Jönsson, T. Carette, M. Nemouchi, M. Godefroid
Ab Initio Calculations of ^{14}N and ^{15}N Hyperfine Structures
 J. Phys. B 43, 115006 (2010)
- | | | |
|---|----------------------------|----|
| N | Energy Levels, Wavelengths | Th |
|---|----------------------------|----|
83. B. J. Wundt, U. D. Jentschura
Proposal for the Determination of Nuclear Masses by High-Precision Spectroscopy of Rydberg States
 J. Phys. B 43, 115002 (2010)
- | | | |
|-----------|----------------------------|----|
| H | Energy Levels, Wavelengths | Th |
| Li^{2+} | Energy Levels, Wavelengths | Th |
| C^{5+} | Energy Levels, Wavelengths | Th |
| D | Energy Levels, Wavelengths | Th |
84. C. Cheng, X. L. Zhang, X. Gao, B. Qing, J. M. Li
Theoretical Study on Mechanisms of Anomalous Fine Structure in the Magnesium Isoelectronic Sequence
 J. Phys. B 43, 105001 (2010)

- | | | |
|------------------|----------------------------|----|
| Mg | Energy Levels, Wavelengths | Th |
| Al ⁺ | Energy Levels, Wavelengths | Th |
| Si ²⁺ | Energy Levels, Wavelengths | Th |
| S ⁴⁺ | Energy Levels, Wavelengths | Th |
85. U. I. Safronova, A. S. Safronova
Wavelengths and Transition Rates for $nl-n'l'$ Transitions in Be-, B-, Mg-, Al-, Ca-, Zn-, Ag- and Yb-like Tungsten Ions
 J. Phys. B 43, 074026 (2010)
- | | | |
|------------------|----------------------------|----|
| W ⁴⁺ | Energy Levels, Wavelengths | Th |
| W ²⁷⁺ | Energy Levels, Wavelengths | Th |
| W ⁴⁴⁺ | Energy Levels, Wavelengths | Th |
| W ⁵⁴⁺ | Energy Levels, Wavelengths | Th |
| W ⁶¹⁺ | Energy Levels, Wavelengths | Th |
| W ⁶²⁺ | Energy Levels, Wavelengths | Th |
| W ⁶⁹⁺ | Energy Levels, Wavelengths | Th |
| W ⁷⁰⁺ | Energy Levels, Wavelengths | Th |
86. U. I. Safronova, M. S. Safronova
Relativistic Many-Body Calculations of the Oscillator Strengths, Transition Rates and Polarizabilities in Zn-like Ions
 J. Phys. B 43, 074025 (2010)
- | | | |
|--------------|----------------------------|----|
| Zn Z= 32-100 | Energy Levels, Wavelengths | Th |
| Zn Z= 33-47 | Energy Levels, Wavelengths | Th |
| Zn Z= 47-92 | Energy Levels, Wavelengths | Th |
87. J. Reader
Spectrum and energy levels of five-times ionized molybdenum, Mo VI
 J. Phys. B 43, 074024 (2010)
- | | | |
|------------------|----------------------------|-----|
| Mo ⁵⁺ | Energy Levels, Wavelengths | E/T |
|------------------|----------------------------|-----|
88. P. Jönsson, J. Bieroń
Relativistic Configuration Interaction Calculations of Energy Levels, Isotope Shifts, Hyperfine Structures, and Transition Rates in the $2s^22p^2-2s2p^3$ Transition Array for the Carbon-like Sequence
 J. Phys. B 43, 074023 (2010)
- | | | |
|-------------------|----------------------------|----|
| N ⁺ | Energy Levels, Wavelengths | Th |
| O ²⁺ | Energy Levels, Wavelengths | Th |
| F ³⁺ | Energy Levels, Wavelengths | Th |
| Ne ⁴⁺ | Energy Levels, Wavelengths | Th |
| Ti ¹⁶⁺ | Energy Levels, Wavelengths | Th |
89. Y. Ishikawa, J. A. Santana, E. Träbert
Relativistic Multireference Many-Body Perturbation Theory for Open-Shell Ions with Multiple Valence Shell Electrons: The Transition Rates and Lifetimes of the Excited Levels in Chlorinelike Fe X
 J. Phys. B 43, 074022 (2010)
- | | | |
|------------------|----------------------------|----|
| Fe ⁹⁺ | Energy Levels, Wavelengths | Th |
|------------------|----------------------------|----|
90. J. D. Gillaspy, C. T. Chantler, D. Paterson, L. T. Hudson, F. G. Serpa, E. Takács
First Measurement of Lyman alpha X-ray Lines in Hydrogen-like Vanadium: Results and Implications for Precision Wavelength Metrology and Tests of QED
 J. Phys. B 43, 074021 (2010)
- | | | |
|------------------|----------------------------|-----|
| V ²²⁺ | Energy Levels, Wavelengths | Exp |
|------------------|----------------------------|-----|

91. M. H. Chen, K. T. Cheng

A Large-Scale Relativistic Configuration-Interaction Approach: Application to the $4s^2$ - $4s4p$ Transition Energies and E1 Rates for Zn-like Ions

J. Phys. B 43, 074019 (2010)

Zn Z= 30-92	Energy Levels, Wavelengths	Th
Zn Z= 51-92	Energy Levels, Wavelengths	Th
Kr⁶⁺	Energy Levels, Wavelengths	Th

92. J.-F. Wyart

Interpretation of the Odd Parity Energy Levels in the Spectrum of Neutral Tungsten

J. Phys. B 43, 074018 (2010)

W	Energy Levels, Wavelengths	E/T
----------	----------------------------	-----

93. É. Biémont, P. Palmeri, P. Quinet

Landé g-Factors Along the Sixth Row of the Periodic Table

J. Phys. B 43, 074010 (2010)

Pr⁺	Energy Levels, Wavelengths	Th
Ta⁰⁺⁻²⁺	Energy Levels, Wavelengths	Th
W⁺²⁺	Energy Levels, Wavelengths	Th
Re⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th
Os⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th
Ir⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th
Au⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Th
Pb	Energy Levels, Wavelengths	Th
Bi⁺	Energy Levels, Wavelengths	Th

94. D. R. Beck, L. Pan

Improved RCI Techniques for Atomic $4f^n$ Excitation Energies and Polarizabilities

J. Phys. B 43, 074009 (2010)

Ni⁺	Energy Levels, Wavelengths	Th
-----------------------	----------------------------	----

95. M. C. Simon, M. Schwarz, S. W. Epp, C. Beilmann, B. L. Schmitt, Z. Harman, T. M. Baumann, P. H. Mokler, S. Bernitt, R. Ginzl, S. G. Higgins, C. H. Keitel, R. Klawitter, K. Kubiček, V. Mäkel, J. Ullrich, J. R. Crespo López-Urrutia

Photoionization of N^{3+} and Ar^{8+} in an Electron Beam Ion Trap by Synchrotron Radiation

J. Phys. B 43, 065003 (2010)

N³⁺	Energy Levels, Wavelengths	Exp
Ar⁸⁺	Energy Levels, Wavelengths	Exp

96. J.-G. Li, P. Jönsson, C.-Z. Dong, G. Gaigalas

Two-Electron–One-Photon M1 and E2 Transitions Between the States of the $2p^3$ and $2s^22p$ Odd Configurations for B-like Ions with $18 \leq Z \leq 92$

J. Phys. B 43, 035005 (2010)

Ar¹³⁺	Energy Levels, Wavelengths	Th
Fe²¹⁺	Energy Levels, Wavelengths	Th
Kr³¹⁺	Energy Levels, Wavelengths	Th
Mo³⁷⁺	Energy Levels, Wavelengths	Th
Xe⁴⁹⁺	Energy Levels, Wavelengths	Th
Eu⁵⁸⁺	Energy Levels, Wavelengths	Th
W⁶⁹⁺	Energy Levels, Wavelengths	Th
Hg⁷⁵⁺	Energy Levels, Wavelengths	Th
U⁸⁷⁺	Energy Levels, Wavelengths	Th

97. J.-Q. Li, X.-M. Zhang, M. Huang, C.-Y. Chen, Y.-M. Zou
Measurement of the Energy of the $(2s_{1/2}2p_{1/2}^22p_{3/2}^2)_{5/2}-(2s^22p_{1/2}^22p_{3/2})_{3/2}$ X-ray Transition in the N-like $^{208}\text{Pb}^{75+}$
 J. Phys. B 43, 035003 (2010)
- | | | |
|-------------------------|----------------------------|-----|
| N Z= 50-92 | Energy Levels, Wavelengths | E/T |
| Pb⁷⁵⁺ | Energy Levels, Wavelengths | E/T |
98. G. Wang, J.-J. Wan, X.-X. Zhou
Relativistic Photoionization Cross Sections for Atomic Mg
 J. Phys. B 43, 035001 (2010)
- | | | |
|-----------------------|----------------------------|----|
| Mg⁺ | Energy Levels, Wavelengths | Th |
|-----------------------|----------------------------|----|
99. E. B. Saloman
Energy Levels and Observed Spectral Lines of Ionized Argon, Ar II through Ar XVIII
 J. Phys. Chem. Ref. Data 39, 033101 (2010)
- | | | |
|----------------------------|----------------------------|-----|
| Ar⁺ | Energy Levels, Wavelengths | E/T |
| Ar⁺¹⁵⁺ | Energy Levels, Wavelengths | E/T |
| Ar⁺¹⁷⁺ | Energy Levels, Wavelengths | E/T |
| Ar¹⁵⁺¹⁷⁺ | Energy Levels, Wavelengths | E/T |
100. B.-C. Gou, L. Zhuo, X.-L. Wu
Relativistic Energies and Auger Widths of High-Lying Doubly-Excited States $1s^23lnl'^1D^e$ in Be-Like O^{4+} Ions
 Chin. Phys. Lett. 27, 043101 (2010)
- | | | |
|-----------------------|----------------------------|----|
| O⁴⁺ | Energy Levels, Wavelengths | Th |
|-----------------------|----------------------------|----|
101. X.-Z. Shen, P. Yuan, J. Liu
Electric-Dipole Allowed (E1) and Forbidden (E2, M1 and M2) Transition Probabilities of 4f for N⁺
 Chin. Phys. B 19, 053101 (2010)
- | | | |
|----------------------|----------------------------|----|
| N⁺ | Energy Levels, Wavelengths | Th |
|----------------------|----------------------------|----|
102. M. Oura
Study of Inner-Shell Excitation and Relaxation Processes in Atomic and Ionic Neon by Means of Soft X-ray Spectroscopy
 Plasma Sci. Technol. 12, 353-360 (2010)
- | | | |
|--------------------------|----------------------------|-----|
| Ne⁰⁺²⁺ | Energy Levels, Wavelengths | E/T |
| Ne⁺ | Energy Levels, Wavelengths | E/T |
103. J. D. Gillaspay
Testing QED in Sodium-like Gold and Xenon: Using Atomic Spectroscopy and an EBIT to Probe the Quantum Vacuum
 J. Instrumentation 5, C10005 (2010)
- | | | |
|-------------------------|----------------------------|-----|
| Xe⁴³⁺ | Energy Levels, Wavelengths | Exp |
| W⁶³⁺ | Energy Levels, Wavelengths | Exp |
104. F. Ferro, A. Artemyev, Th. Stöhlker, A. Surzhykov
Isotopic Tuning of the $2^3P_0-2^1S_0$ and $2^3P_1-2^1S_0$ Transition Energies in He-like Ions for Future Parity-Nonconservation Experiments
 J. Instrumentation 5, C08006 (2010)
- | | | |
|-------------------------|----------------------------|----|
| He Z= 28-36 | Energy Levels, Wavelengths | Th |
| He Z= 62-68 | Energy Levels, Wavelengths | Th |
| Ce⁵⁶⁺ | Energy Levels, Wavelengths | Th |
| Nd⁵⁸⁺ | Energy Levels, Wavelengths | Th |
| Gd⁶²⁺ | Energy Levels, Wavelengths | Th |

105. Y. Fu, K. Yao, B. Wei, D. Lu, R. Hutton, Y. Zou
Overview of the Shanghai EBIT
 J. Instrumentation 5, C08011 (2010)
- | | | |
|------------------------------|----------------------------|-----|
| Xe ^{46+–52+} | Energy Levels, Wavelengths | Exp |
|------------------------------|----------------------------|-----|
106. J. Clementson
Spectroscopic Investigations of Highly Charged Tungsten Ions – Atomic Spectroscopy and Fusion Plasma Diagnostics
 Thesis, Univ. Lund, Physics Dept., Lund, Sweden , (2010)
- | | | |
|------------------------------|----------------------------|-----|
| W ^{42+–51+} | Energy Levels, Wavelengths | E/T |
| W ⁴⁶⁺ | Energy Levels, Wavelengths | E/T |
| W ⁶¹⁺ | Energy Levels, Wavelengths | E/T |
| W ^{62+–71+} | Energy Levels, Wavelengths | E/T |
| Au ^{53+–69+} | Energy Levels, Wavelengths | E/T |
| Bi ^{74+–80+} | Energy Levels, Wavelengths | E/T |
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 AIP Conf. Proc. 1185, 454-457 (2009)
- | | | |
|------------------------------|----------------------------|-----|
| B ³⁺ | Energy Levels, Wavelengths | Exp |
| B ⁴⁺ | Energy Levels, Wavelengths | Exp |
| Fe ^{23+–25+} | Energy Levels, Wavelengths | Exp |
| Xe ^{49+–53+} | Energy Levels, Wavelengths | Exp |
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New Fe IX Line Identifications Using Solar and Heliospheric Observatory/Solar Ultraviolet Measurement of Emitted Radiation and Hinode/EIS
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- | | | |
|-------------------------|----------------------------|-----|
| Fe ⁸⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
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CHIANTI–An Atomic Database for Emission Lines. XI. Extreme-Ultraviolet Emission Lines of Fe VII, Fe VIII, and Fe IX Observed by Hinode/EIS
 Astrophys. J. 707, 173-192 (2009)
- | | | |
|----------------------------|----------------------------|-----|
| Fe ^{6+–8+} | Energy Levels, Wavelengths | Exp |
| Fe ^{7+–8+} | Energy Levels, Wavelengths | Exp |
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CHIANTI–An Atomic Database for Emission Lines. X. Spectral Atlas of a Cold Feature Observed with Hinode/EUV Imaging Spectrometer
 Astrophys. J. 706, 1-20 (2009)
- | | | |
|-----------------------------|----------------------------|-----|
| He ⁺ | Energy Levels, Wavelengths | Exp |
| O ^{3+–5+} | Energy Levels, Wavelengths | Exp |
| Ne ^{4+–5+} | Energy Levels, Wavelengths | Exp |
| Mg ^{4+–6+} | Energy Levels, Wavelengths | Exp |
| Al ⁴⁺ | Energy Levels, Wavelengths | Exp |
| Al ^{6+–8+} | Energy Levels, Wavelengths | Exp |
| Si ^{5+–9+} | Energy Levels, Wavelengths | Exp |
| S ^{7+–9+} | Energy Levels, Wavelengths | Exp |
| Cr ^{6+–7+} | Energy Levels, Wavelengths | Exp |
| Mn ^{7+–8+} | Energy Levels, Wavelengths | Exp |
| Fe ^{6+–15+} | Energy Levels, Wavelengths | Exp |
| Ni ¹⁰⁺ | Energy Levels, Wavelengths | Exp |

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Benchmarking Atomic Data for Astrophysics: Fe XVII EUV Lines
Astron. Astrophys. 508, 1517-1526 (2009)
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|-------------------------|----------------------------|-----|
| Fe¹⁶⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
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|------------------------|----------------------------|-----|
| Fe⁷⁺ | Energy Levels, Wavelengths | Exp |
|------------------------|----------------------------|-----|
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Benchmarking Atomic Data for Astrophysics: Fe VII and Other Cool Lines Observed by Hinode EIS
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|------------------------|----------------------------|-----|
| Fe⁶⁺ | Energy Levels, Wavelengths | Exp |
|------------------------|----------------------------|-----|
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New Identified (³H)4d-(³H)4f Transitions of Fe II from UVES Spectra of HR 6000 and 46 Aquilae
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- | | | |
|-----------------------|----------------------------|-----|
| Fe⁺ | Energy Levels, Wavelengths | Exp |
|-----------------------|----------------------------|-----|
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Radiative Rates and Electron Impact Excitation Rates for Transitions in Cr VIII
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|------------------------|----------------------------|----|
| Cr⁷⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
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Solar Transition Region Above Sunspots
Astron. Astrophys. 505, 307-318 (2009)
- | | | |
|---------------------------|----------------------------|-----|
| O²⁺⁻⁵⁺ | Energy Levels, Wavelengths | Exp |
| Ne³⁺⁻⁶⁺ | Energy Levels, Wavelengths | Exp |
| Na⁴⁺⁻⁷⁺ | Energy Levels, Wavelengths | Exp |
| Mg⁴⁺⁻⁸⁺ | Energy Levels, Wavelengths | Exp |
| Al⁴⁺ | Energy Levels, Wavelengths | Exp |
| Al⁶⁺⁻⁹⁺ | Energy Levels, Wavelengths | Exp |
| Si³⁺⁻⁴⁺ | Energy Levels, Wavelengths | Exp |
| Si⁶⁺⁻⁸⁺ | Energy Levels, Wavelengths | Exp |
| S²⁺⁻⁵⁺ | Energy Levels, Wavelengths | Exp |
| S⁸⁺ | Energy Levels, Wavelengths | Exp |
| Cl⁵⁺⁻⁶⁺ | Energy Levels, Wavelengths | Exp |
| Ar⁴⁺⁻⁷⁺ | Energy Levels, Wavelengths | Exp |
| Ca⁴⁺⁻⁵⁺ | Energy Levels, Wavelengths | Exp |
| Ca⁷⁺⁻⁹⁺ | Energy Levels, Wavelengths | Exp |
| Mn⁶⁺ | Energy Levels, Wavelengths | Exp |
| Fe⁶⁺⁻⁷⁺ | Energy Levels, Wavelengths | Exp |
| Fe¹¹⁺ | Energy Levels, Wavelengths | Exp |
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Nitrogen K-Shell Photoabsorption
Astrophys. J., Suppl. Ser. 185, 477-485 (2009)
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|--------------------------|----------------------------|----|
| N⁰⁺⁻⁶⁺ | Energy Levels, Wavelengths | Th |
|--------------------------|----------------------------|----|

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|--------------------------|----------------------------|----|
| Ca ¹⁷⁺ | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
| Tm ⁶⁶⁺ | Energy Levels, Wavelengths | Th |
| Au ⁷⁶⁺ | Energy Levels, Wavelengths | Th |
| Hg | Energy Levels, Wavelengths | Th |
| U ⁸⁹⁺ | Energy Levels, Wavelengths | Th |
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Precision Measurement of the K-Shell Spectrum from Highly Charged Xenon with an Array of X-Ray Calorimeters
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|--------------------------|----------------------------|-----|
| Xe ⁵²⁺ | Energy Levels, Wavelengths | Exp |
| Xe ⁵³⁺ | Energy Levels, Wavelengths | Exp |
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Energy Levels in Ag-like ($4d^{10}4f$, $4d^{10}5\ell$ ($\ell = 0-3$)), Pd-like ($4d^9 4f$ [$J = 1$], $4d^9 5p$ [$J = 1$], $4d^9 5f$ [$J = 1$]), and Rh-like ($4d^9$ [$J = 5/2, 3/2$]) Ions with $Z \leq 86$
 At. Data Nucl. Data Tables 95, 786-804 (2009)
- | | | |
|--------------------|----------------------------|----|
| Rh Z= 52-86 | Energy Levels, Wavelengths | Th |
| Pd Z= 52-86 | Energy Levels, Wavelengths | Th |
| Ag Z= 52-86 | Energy Levels, Wavelengths | Th |
| Pd Z= 52-86 | Energy Levels, Wavelengths | Th |
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Excitation Energies, Radiative and Autoionization Rates, Dielectronic Satellite Lines, and Dielectronic Recombination Rates for Excited States of Na-like W from Ne-like W
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|-------------------------|----------------------------|----|
| W ⁶³⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
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 Can. J. Phys. 87, 895-907 (2009)
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|--------------------------|----------------------------|----|
| Cu ¹⁶⁺ | Energy Levels, Wavelengths | Th |
|--------------------------|----------------------------|----|
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 Can. J. Phys. 87, 825-834 (2009)
- | | | |
|------------------------|----------------------------|-----|
| Li | Energy Levels, Wavelengths | Exp |
| Be ⁺ | Energy Levels, Wavelengths | Exp |
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Critical Examination of Isotope Shift and Fine Structure Measurements for Optical Transitions in ^{6,7}Li
 Can. J. Phys. 87, 807-815 (2009)
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|-----------|----------------------------|-----|
| Li | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|

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 Can. J. Phys. 87, 763-772 (2009)
- | | | |
|--------------------|----------------------------|-----|
| H Z= 16-32 | Energy Levels, Wavelengths | Exp |
| He Z= 15-39 | Energy Levels, Wavelengths | Exp |
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CRDS Study of Auto-Ionizing Rydberg States of Argon in a Microwave Discharge
 Can. J. Phys. 87, 575-581 (2009)
- | | | |
|-----------|----------------------------|-----|
| Ar | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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Energy Levels, Oscillator Strengths and Lifetimes in Ar V
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|------------------------|----------------------------|----|
| Ar⁴⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
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Hyperfine Spectroscopy of the 1s₅-2p₉ Transition of ³⁹Ar
 Rev. Sci. Instrum. 80, 113109 (2009)
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|-----------|----------------------------|-----|
| Ar | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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Extension of the Resonance Line Series of Mg III
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|------------------------|----------------------------|-----|
| Mg²⁺ | Energy Levels, Wavelengths | E/T |
|------------------------|----------------------------|-----|
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Energies and Auger Widths of the High-Lying Triply Excited States for Li-like Beryllium
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|-----------------------|----------------------------|----|
| Be⁺ | Energy Levels, Wavelengths | Th |
|-----------------------|----------------------------|----|
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Isotope Shifts and Hyperfine Structure of the Fe I 372-nm Resonance Line
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- | | | |
|-----------|----------------------------|-----|
| Fe | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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Hylleraas-Configuration-Interaction Study of the 2 ²S Ground State of Neutral Lithium and the First Five Excited ²S States
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- | | | |
|-----------|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
133. Y. Podpaly, J. Clementson, P. Beiersdorfer, J. Williamson, G. V. Brown, M. F. Gu
Spectroscopy of 2s_{1/2}-2p_{3/2} Transitions in W⁶⁵⁺ through W⁷¹⁺
 Phys. Rev. A 80, 052504 (2009)
- | | | |
|----------------------------|----------------------------|-----|
| W⁶⁵⁺⁻⁷¹⁺ | Energy Levels, Wavelengths | Exp |
|----------------------------|----------------------------|-----|
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Intershell Trielectronic Recombination with K-Shell Excitation in Kr³⁰⁺
 Phys. Rev. A 80, 050702 (2009)

- | | | | |
|------|---|----------------------------|-----|
| | Kr²⁸⁺⁻³⁰⁺ | Energy Levels, Wavelengths | Exp |
| | Kr³²⁺ | Energy Levels, Wavelengths | Exp |
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Relativistic Configuration-Interaction Oscillator Strengths for Lowest E1 Transitions in Silver and Gold Isoelectronic Sequences
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| | Ag Z= 47-57 | Energy Levels, Wavelengths | Th |
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| | H Z= 1-100 | Energy Levels, Wavelengths | Th |
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| | Fe⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Th |
| 138. | W.-G. Jin, Y. Nemoto, T. Minowa
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| | Ti | Energy Levels, Wavelengths | Exp |
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A Comparison of the Resonance Energies and Widths of the Be ¹P^o and ³P^o Doubly Excited States Obtained with the BSCR and Stabilization Methods along with the BSCI Approach
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| | Be | Energy Levels, Wavelengths | Th |
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| | C³⁺ | Energy Levels, Wavelengths | Exp |
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| | Fe²⁴⁺ | Energy Levels, Wavelengths | Th |
| | Kr³⁴⁺ | Energy Levels, Wavelengths | Th |
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| | Xe⁴⁺ | Energy Levels, Wavelengths | E/T |

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 J. Phys. B 42, 205001 (2009)
- | | | |
|----------------------------|----------------------------|----|
| Sr Z= 43-68 | Energy Levels, Wavelengths | Th |
| Ru Z= 49-74 | Energy Levels, Wavelengths | Th |
| Sn⁵⁺⁻¹²⁺ | Energy Levels, Wavelengths | Th |
| W²⁹⁺⁻³⁷⁺ | Energy Levels, Wavelengths | Th |
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|---------------------------|----------------------------|-----|
| He Z= 2-5 | Energy Levels, Wavelengths | E/T |
| He | Energy Levels, Wavelengths | E/T |
| Li | Energy Levels, Wavelengths | E/T |
| Li⁰⁺⁻²⁺ | Energy Levels, Wavelengths | E/T |
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Precision Laser Spectroscopy of Li^+ and Neutral Lithium
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|-----------------------|----------------------------|-----|
| Li | Energy Levels, Wavelengths | Exp |
| Li⁺ | Energy Levels, Wavelengths | Exp |
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|-------------------------|----------------------------|-----|
| C⁵⁺ | Energy Levels, Wavelengths | Exp |
| O⁷⁺ | Energy Levels, Wavelengths | Exp |
| Ca¹⁹⁺ | Energy Levels, Wavelengths | Exp |
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|------------------------|----------------------------|-----|
| Kr³⁺ | Energy Levels, Wavelengths | Exp |
|------------------------|----------------------------|-----|
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|------------------------|----------------------------|-----|
| Kr³⁺ | Energy Levels, Wavelengths | Exp |
|------------------------|----------------------------|-----|
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|-----------|----------------------------|----|
| Fe | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
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|-------------------------|----------------------------|-----|
| Ar¹⁶⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|

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 J. Anal. At. Spectrom. 22, 1447-1470 (2007)
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|-----------------------|----------------------------|-----|
| Fe⁺ | Energy Levels, Wavelengths | E/T |
| Ni⁺ | Energy Levels, Wavelengths | E/T |
| Tc⁺ | Energy Levels, Wavelengths | E/T |
| Pm⁺ | Energy Levels, Wavelengths | E/T |
| Am⁺ | Energy Levels, Wavelengths | E/T |
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|-----------------------------|----------------------------|-----|
| Mo²³⁺⁻²⁷⁺ | Energy Levels, Wavelengths | Exp |
| W²¹⁺⁻²⁵⁺ | Energy Levels, Wavelengths | Exp |
| W²⁷⁺⁻²⁹⁺ | Energy Levels, Wavelengths | Exp |
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|------------------------|----------------------------|-----|
| Kr³⁺ | Energy Levels, Wavelengths | Exp |
|------------------------|----------------------------|-----|
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|-------------------|----------------------------|-----|
| N Z= 13-16 | Energy Levels, Wavelengths | Exp |
| N Z= 18-20 | Energy Levels, Wavelengths | Exp |
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|---------------------------|----------------------------|-----|
| H | Energy Levels, Wavelengths | Exp |
| Ca | Energy Levels, Wavelengths | Exp |
| Kr | Energy Levels, Wavelengths | Exp |
| Sr⁺ | Energy Levels, Wavelengths | Exp |
| Cd | Energy Levels, Wavelengths | Exp |
| In⁺ | Energy Levels, Wavelengths | Exp |
| Yb⁺ | Energy Levels, Wavelengths | Exp |
| Hg | Energy Levels, Wavelengths | Exp |
| Hg⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Hg⁺ | Energy Levels, Wavelengths | Exp |
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|------------------|----------------------------|----|
| H Z= 1-26 | Energy Levels, Wavelengths | Th |
|------------------|----------------------------|----|
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 Phys. Rev. A 62, 042703 (2000)

- | | | |
|----|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
| Na | Energy Levels, Wavelengths | Th |
| K | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
| Fr | Energy Levels, Wavelengths | Th |
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Photodetachments of the Metastable $nsnp^2\ ^4P$ States of Be^- , Mg^- , and Ca^- Ions
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- | | | |
|--------|----------------------------|----|
| Be^- | Energy Levels, Wavelengths | Th |
| Mg^- | Energy Levels, Wavelengths | Th |
| Mg | Energy Levels, Wavelengths | Th |
| Ca^- | Energy Levels, Wavelengths | Th |
| Ca | Energy Levels, Wavelengths | Th |
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- | | | |
|--------|----------------------------|-----|
| Al^+ | Energy Levels, Wavelengths | Exp |
|--------|----------------------------|-----|
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| He Z= 20-100 | Energy Levels, Wavelengths | E/T |
| U^{90+} | Energy Levels, Wavelengths | E/T |
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Hyperfine Splittings of Neonlike Lasing Lines
 Phys. Rev. A 49, 2381-2388 (1994)
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|-------------|----------------------------|----|
| F Z= 17-59 | Energy Levels, Wavelengths | Th |
| Na Z= 17-59 | Energy Levels, Wavelengths | Th |
| Ne Z= 17-59 | Energy Levels, Wavelengths | Th |
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| Xe^{50+} | Energy Levels, Wavelengths | Exp |
|------------|----------------------------|-----|
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|--------|----------------------------|----|
| Na | Energy Levels, Wavelengths | Th |
| Mg^+ | Energy Levels, Wavelengths | Th |
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	Li	Energy Levels, Wavelengths	Th
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	Selected Tables of Atomic Spectra – O IV		
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	O³⁺	Energy Levels, Wavelengths	E/T
166.	G. O'Sullivan, P. K. Carroll		
	4d-4f Emission Resonances in Laser-Produced Plasmas		
	J. Opt. Soc. Am. 71, 227-230 (1981)		
	Sn-I¹³⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp
	Cs-W¹³⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Exp
167.	C. E. Moore		
	Selected Tables of Atomic Spectra – O V		
	Nat. Stand. Ref. Data Ser., NSRDS-NBS 3 (Sect. 9), U.S. Nat. Bur. Stand., (1980)		
	O⁴⁺	Energy Levels, Wavelengths	E/T
168.	M. Outred		
	Tables of Atomic Spectral Lines for the 10000 Å to 40000 Å Region		
	J. Phys. Chem. Ref. Data 110, 1-262 (1978)		
	He	Energy Levels, Wavelengths	Exp
	Be	Energy Levels, Wavelengths	Exp
	Be⁺	Energy Levels, Wavelengths	Exp
	B	Energy Levels, Wavelengths	Exp
	N	Energy Levels, Wavelengths	Exp
	N⁺	Energy Levels, Wavelengths	Exp
	O	Energy Levels, Wavelengths	Exp
	F	Energy Levels, Wavelengths	Exp
	F⁺	Energy Levels, Wavelengths	Exp
	Ne	Energy Levels, Wavelengths	Exp
	Ne⁺	Energy Levels, Wavelengths	Exp
	Na	Energy Levels, Wavelengths	Exp
	Mg	Energy Levels, Wavelengths	Exp
	Mg⁺	Energy Levels, Wavelengths	Exp
	Al	Energy Levels, Wavelengths	Exp
	Si	Energy Levels, Wavelengths	Exp
	P	Energy Levels, Wavelengths	Exp
	S	Energy Levels, Wavelengths	Exp
	Cl	Energy Levels, Wavelengths	Exp
	Cl⁺	Energy Levels, Wavelengths	Exp
	Ar	Energy Levels, Wavelengths	Exp
	Ar⁺	Energy Levels, Wavelengths	Exp
	K	Energy Levels, Wavelengths	Exp
	Ca	Energy Levels, Wavelengths	Exp
	Ca⁺	Energy Levels, Wavelengths	Exp
	Cr	Energy Levels, Wavelengths	Exp
	Fe	Energy Levels, Wavelengths	Exp
	Fe⁺	Energy Levels, Wavelengths	Exp
	Cu	Energy Levels, Wavelengths	Exp
	Cu⁺	Energy Levels, Wavelengths	Exp
	Zn	Energy Levels, Wavelengths	Exp
	Ga	Energy Levels, Wavelengths	Exp
	Ge	Energy Levels, Wavelengths	Exp
	As⁺	Energy Levels, Wavelengths	Exp

Se	Energy Levels, Wavelengths	Exp
Se ⁺	Energy Levels, Wavelengths	Exp
Br	Energy Levels, Wavelengths	Exp
Kr	Energy Levels, Wavelengths	Exp
Rb	Energy Levels, Wavelengths	Exp
Zr	Energy Levels, Wavelengths	Exp
Zr ⁺	Energy Levels, Wavelengths	Exp
Ru	Energy Levels, Wavelengths	Exp
In	Energy Levels, Wavelengths	Exp
Te	Energy Levels, Wavelengths	Exp
I	Energy Levels, Wavelengths	Exp
I ⁺	Energy Levels, Wavelengths	Exp
Xe	Energy Levels, Wavelengths	Exp
Cs	Energy Levels, Wavelengths	Exp
Ba	Energy Levels, Wavelengths	Exp
Ba ⁺	Energy Levels, Wavelengths	Exp
La ²⁺	Energy Levels, Wavelengths	Exp
Ce ⁰⁺⁻²⁺	Energy Levels, Wavelengths	Exp
Pr ²⁺	Energy Levels, Wavelengths	Exp
Nd	Energy Levels, Wavelengths	Exp
Nd ⁺	Energy Levels, Wavelengths	Exp
Sm	Energy Levels, Wavelengths	Exp
Sm ⁺	Energy Levels, Wavelengths	Exp
Gd ⁰⁺⁻²⁺	Energy Levels, Wavelengths	Exp
Tb	Energy Levels, Wavelengths	Exp
Dy	Energy Levels, Wavelengths	Exp
Dy ⁺	Energy Levels, Wavelengths	Exp
Tm	Energy Levels, Wavelengths	Exp
Tm ⁺	Energy Levels, Wavelengths	Exp
Yb	Energy Levels, Wavelengths	Exp
Yb ⁺	Energy Levels, Wavelengths	Exp
Lu	Energy Levels, Wavelengths	Exp
Hf	Energy Levels, Wavelengths	Exp
Hf ⁺	Energy Levels, Wavelengths	Exp
W	Energy Levels, Wavelengths	Exp
Re	Energy Levels, Wavelengths	Exp
Hg	Energy Levels, Wavelengths	Exp
Pb	Energy Levels, Wavelengths	Exp
Pb ⁵⁰⁺	Energy Levels, Wavelengths	Exp
Th ⁰⁺⁻²⁺	Energy Levels, Wavelengths	Exp
Cm	Energy Levels, Wavelengths	Exp
Cm ⁺	Energy Levels, Wavelengths	Exp

169. E. V. Aglitskii, A. N. Zherikhin, P. G. Kryukov, S. V. Chekalin
Features of X-ray Spectra of a Plasma Produced by a Subnanosecond Laser Pulse
 Sov. Phys.-JETP 46-4, 707-711 (1977)

Cl ¹⁵⁺	Energy Levels, Wavelengths	Exp
K ¹⁷⁺	Energy Levels, Wavelengths	Exp

170. C. E. Moore
A Multiplet Table of Astrophysical Interest, Revised Edition, Part I. Table of Multiplets, Part II. Finding List of All Lines in the Table of Multiplets
 Nat. Stand. Ref. Data Ser., NSRDS-40, Washington, D.C. U.S. Government Printing Office, (1972)

H Z= 1-2	Energy Levels, Wavelengths	E/T
H	Energy Levels, Wavelengths	E/T
He ⁺	Energy Levels, Wavelengths	E/T
Li ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T

Be ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
B ⁺²⁺	Energy Levels, Wavelengths	E/T
C ⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T
N ⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T
O ⁰⁺⁻⁵⁺	Energy Levels, Wavelengths	E/T
F ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Ne ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Na ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Mg ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Al ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Si ⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T
P ⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
S ⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T
Cl ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Ar ⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T
K ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Ca ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Sc ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Ti ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Ti ³⁺	Energy Levels, Wavelengths	E/T
V ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Cr ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Mn ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Fe ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Co ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Ni ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Cu ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Zn ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Ga	Energy Levels, Wavelengths	E/T
Ge ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
As ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Se	Energy Levels, Wavelengths	E/T
Rb	Energy Levels, Wavelengths	E/T
Sr-Rh ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Pd-Te	Energy Levels, Wavelengths	E/T
Sn ⁺	Energy Levels, Wavelengths	E/T
Cs	Energy Levels, Wavelengths	E/T
Ba ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
La ⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Ce ⁺²⁺	Energy Levels, Wavelengths	E/T
Pr ⁺	Energy Levels, Wavelengths	E/T
Nd ⁺	Energy Levels, Wavelengths	E/T
Sm-Gd ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Tm-Hf ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Ta	Energy Levels, Wavelengths	E/T
W ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Re-Bi	Energy Levels, Wavelengths	E/T
Ra ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	E/T
Th	Energy Levels, Wavelengths	E/T
D	Energy Levels, Wavelengths	E/T

171. H. Grotch, R. A. Hegstrom

Hydrogenic Atoms in a Magnetic Field

Phys. Rev. A 4, 59-69 (1971)

H Z= 1-100	Energy Levels, Wavelengths	Th
H	Energy Levels, Wavelengths	Th
D	Energy Levels, Wavelengths	Th

172. C. E. Moore, P. W. Merrill

Partial Grotrian Diagrams of Astrophysical Interest

H	Energy Levels, Wavelengths	E/T
He	Energy Levels, Wavelengths	E/T
He⁺	Energy Levels, Wavelengths	E/T
Li	Energy Levels, Wavelengths	E/T
Be	Energy Levels, Wavelengths	E/T
Be⁺	Energy Levels, Wavelengths	E/T
B	Energy Levels, Wavelengths	E/T
C⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T
N⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
O⁰⁺⁻⁵⁺	Energy Levels, Wavelengths	E/T
Ne⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
Na	Energy Levels, Wavelengths	E/T
Na³⁺	Energy Levels, Wavelengths	E/T
Mg	Energy Levels, Wavelengths	E/T
Mg⁺	Energy Levels, Wavelengths	E/T
Mg⁴⁺	Energy Levels, Wavelengths	E/T
Al⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Si⁰⁺⁻³⁺	Energy Levels, Wavelengths	E/T
P	Energy Levels, Wavelengths	E/T
P⁺	Energy Levels, Wavelengths	E/T
S⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Cl⁺⁻³⁺	Energy Levels, Wavelengths	E/T
Ar⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
K	Energy Levels, Wavelengths	E/T
K³⁺	Energy Levels, Wavelengths	E/T
Ca	Energy Levels, Wavelengths	E/T
Ca⁺	Energy Levels, Wavelengths	E/T
Ca⁴⁺	Energy Levels, Wavelengths	E/T
Sc	Energy Levels, Wavelengths	E/T
Sc⁺	Energy Levels, Wavelengths	E/T
Ti	Energy Levels, Wavelengths	E/T
Ti⁺	Energy Levels, Wavelengths	E/T
V	Energy Levels, Wavelengths	E/T
V⁺	Energy Levels, Wavelengths	E/T
Cr	Energy Levels, Wavelengths	E/T
Cr⁺	Energy Levels, Wavelengths	E/T
Mn	Energy Levels, Wavelengths	E/T
Mn⁺	Energy Levels, Wavelengths	E/T
Fe⁰⁺⁻²⁺	Energy Levels, Wavelengths	E/T
Co	Energy Levels, Wavelengths	E/T
Ni	Energy Levels, Wavelengths	E/T
Ni⁺	Energy Levels, Wavelengths	E/T
Ga	Energy Levels, Wavelengths	E/T
Rb	Energy Levels, Wavelengths	E/T
Sr	Energy Levels, Wavelengths	E/T
Sr⁺	Energy Levels, Wavelengths	E/T
Y	Energy Levels, Wavelengths	E/T
Y⁺	Energy Levels, Wavelengths	E/T
Zr	Energy Levels, Wavelengths	E/T
Zr⁺	Energy Levels, Wavelengths	E/T
Nb	Energy Levels, Wavelengths	E/T
Nb⁺	Energy Levels, Wavelengths	E/T
Mo	Energy Levels, Wavelengths	E/T
Mo⁺	Energy Levels, Wavelengths	E/T
Tc	Energy Levels, Wavelengths	E/T
Tc⁺	Energy Levels, Wavelengths	E/T
In	Energy Levels, Wavelengths	E/T

- | | | |
|-----------------|----------------------------|-----|
| Cs | Energy Levels, Wavelengths | E/T |
| Ba | Energy Levels, Wavelengths | E/T |
| Ba ⁺ | Energy Levels, Wavelengths | E/T |
| La | Energy Levels, Wavelengths | E/T |
| La ⁺ | Energy Levels, Wavelengths | E/T |
| Hf ⁺ | Energy Levels, Wavelengths | E/T |
| W | Energy Levels, Wavelengths | E/T |
| Re | Energy Levels, Wavelengths | E/T |
| Re ⁺ | Energy Levels, Wavelengths | E/T |
173. J. A. Bearden, A. F. Burr
Reevaluation of X-ray Atomic Energy Levels
 Rev. Mod. Phys. 39, 125-142 (1967)
- | | | |
|-------|----------------------------|-----|
| Li-Am | Energy Levels, Wavelengths | E/T |
|-------|----------------------------|-----|
174. J. A. Bearden
X-ray Wavelengths
 Rev. Mod. Phys. 39, 78-124 (1967)
- | | | |
|-------|----------------------------|-----|
| Li-Am | Energy Levels, Wavelengths | Exp |
|-------|----------------------------|-----|
175. J. A. Bearden, A. F. Burr
X-ray Wavelengths and X-ray Atomic Energy Levels
 Nat. Stand. Ref. Data Ser., NSRDS-NBS 14, Washington, D.C. U.S. Government Printing Office, (1967)
- | | | |
|-------|----------------------------|-----|
| Li-Am | Energy Levels, Wavelengths | Exp |
|-------|----------------------------|-----|
176. C. J. Humphreys
Interferometric Determinations of Wavelengths in Ar, Kr 86 and Xe 136 in the Region between 1.2 and 3.5 μ
 Transact. Int. Astron. Union 12B, 178-181 (1966)
- | | | |
|----|----------------------------|-----|
| Ar | Energy Levels, Wavelengths | Exp |
| Kr | Energy Levels, Wavelengths | Exp |
| Xe | Energy Levels, Wavelengths | Exp |
177. B. Budick
Lifetime and Hyperfine Structure of the 3 ²D_{5/2} State in Aluminum
 Bull. Am. Phys. Soc., Ser. II 11, 465 (1966)
- | | | |
|----|----------------------------|-----|
| Al | Energy Levels, Wavelengths | Exp |
|----|----------------------------|-----|
178. J. R. Crespo López-Urrutia, P. Beiersdorfer
Measurement of the radiative decay rate of the metastable (2s²2p_{3/2}⁵3s_{1/2})_(J=2) level in Fe XVII
 Astrophys. J. 721, 576-581 (2010)
- | | | |
|-------------------|---------------------------------|-----|
| Fe ¹⁶⁺ | Trans. prob., Oscill. Strengths | Exp |
|-------------------|---------------------------------|-----|
179. E. Landi, P. R. Young
New Fe VIII line identifications using observations of the quiet sun
 Astrophys. J. 713, 205-211 (2010)
- | | | |
|------------------|---------------------------------|----|
| Fe ⁷⁺ | Trans. prob., Oscill. Strengths | Th |
|------------------|---------------------------------|----|
180. J. D. Destree, K. E. Williamson, T. P. Snow
Detection in the interstellar medium of the weak [Mg II] transition at 1398.8 Å
 Astrophys. J. 712, L48-L52 (2010)

	Mg⁺	Trans. prob., Oscill. Strengths	Exp
181.	N. C. Deb, A. Hibbert		
	Calculation of intensity ratios of observed infrared [Fe II] lines		
	Astrophys. J. 711, L104-L107 (2010)		
	Fe⁺	Trans. prob., Oscill. Strengths	Th
182.	N. C. Deb, A. Hibbert		
	Importance of level mixing on accurate [Fe II] transition rates		
	Astron. Astrophys. 524, p.A54 (2010)		
	Fe⁺	Trans. prob., Oscill. Strengths	Th
183.	G. Del Zanna		
	Benchmarking atomic data for astrophysics: Fe XI		
	Astron. Astrophys. 514, p.A41 (2010)		
	Fe¹⁰⁺	Trans. prob., Oscill. Strengths	Th
184.	G. Del Zanna, P. J. Storey, H. E. Mason		
	Atomic data from the IRON project – LXVIII. Electron impact excitation of Fe XI		
	Astron. Astrophys. 514, p.A40 (2010)		
	Fe¹⁰⁺	Trans. prob., Oscill. Strengths	Th
185.	H. Nilsson, H. Hartman, L. Engström, H. Lundberg, C. Sneden, V. Fivet, P. Palmeri, P. Quinet, É. Biémont		
	Transition probabilities of astrophysical interest in the niobium ions Nb⁺ and Nb²⁺		
	Astron. Astrophys. 511, p.A16 (2010)		
	Nb⁺	Trans. prob., Oscill. Strengths	E/T
	Nb²⁺	Trans. prob., Oscill. Strengths	E/T
186.	J. Gurell, H. Nilsson, L. Engström, H. Lundberg, R. Blackwell-Whitehead, K. E. Nielsen, S. Mannervik		
	The FERRUM project: laboratory-measured transition probabilities for Cr II		
	Astron. Astrophys. 511, p.A68 (2010)		
	Cr⁺	Trans. prob., Oscill. Strengths	Exp
187.	P. J. Storey, C. J. Zeippen		
	Atomic data from the IRON project. LXVII. Electron impact excitation of Fe XIII		
	Astron. Astrophys. 511, p.A78 (2010)		
	Fe¹²⁺	Trans. prob., Oscill. Strengths	Th
188.	M. A. Ali, P. M. Stone		
	Excitation of the 3p⁵5p levels of argon from the 3p⁵4s metastables		
	Int. J. Mass Spectrom. 294, 59-64 (2010)		
	Ar	Trans. prob., Oscill. Strengths	Th
189.	G. Y. Liang, N. R. Badnell, J. R. Crespo López-Urrutia, T. M. Baumann, G. Del Zanna, P. J. Storey, H. Tawara, J. Ullrich		
	R-Matrix electron-impact excitation of Fe¹³⁺ and its application to the soft X-ray and extreme-ultraviolet spectroscopy of corona-like plasmas		
	Astrophys. J., Suppl. Ser. 190, 322-333 (2010)		
	Fe¹³⁺	Trans. prob., Oscill. Strengths	Th

190. S. Kotochigova, M. Linnik, K. P. Kirby, N. S. Brickhouse
Radiative L-shell transitions in Fe XIX and Fe XX ions
 Astrophys. J., Suppl. Ser. 186, 85-93 (2010)
- $\text{Fe}^{18+-19+}$ Trans. prob., Oscill. Strengths Th
191. C.-Y. Chen, K. Wang, M. Huang, Y.-S. Wang, Y.-M. Zou
Radiative rates and electron impact excitation rate coefficients for H-like Fe XXVI
 J. Quant. Spectrosc. Radiat. Transfer 111, 843-856 (2010)
- Fe^{25+} Trans. prob., Oscill. Strengths Th
192. K. R. Karim
Z dependence of radiative and Auger transitions rates from doubly excited 3l3l' states of helium-like ions
 J. Quant. Spectrosc. Radiat. Transfer 111, 384-393 (2010)
- He Z= 18-28 step 2** Trans. prob., Oscill. Strengths Th
 Ne^{8+} Trans. prob., Oscill. Strengths Th
 Si^{12+} Trans. prob., Oscill. Strengths Th
193. L. Zhuo, F. Chen, B. C. Gou
High-Lying core-excited quartet states in Li-like N^{4+} and F^{6+} ions
 Int. J. Quantum Chem. 110, 1108-1116 (2010)
- N^{4+} Trans. prob., Oscill. Strengths Th
 F^{6+} Trans. prob., Oscill. Strengths Th
194. S. N. Nahar
Oscillator strengths and transition probabilities of O II
 At. Data Nucl. Data Tables 96, 863-877 (2010)
- O^+ Trans. prob., Oscill. Strengths Th
195. J. Singh, A. K. S. Jha, N. Verma, M. Mohan
New atomic data for Ti X
 At. Data Nucl. Data Tables 96, 759-816 (2010)
- Ti^{9+} Trans. prob., Oscill. Strengths Th
196. N. C. Deb, A. Hibbert
Electric-Dipole allowed and intercombination transitions among the $3d^5$, $3d^44s$ and $3d^44p$ levels of Fe IV
 At. Data Nucl. Data Tables 96, 358-480 (2010)
- Fe^{3+} Trans. prob., Oscill. Strengths Th
197. P. Jönsson, J.-G. Li, G. Gaigalas, C.-Z. Dong
Hyperfine structures, isotope shifts, and transition rates of C II, N III, and O IV from relativistic configuration interaction calculations
 At. Data Nucl. Data Tables 96, 271-298 (2010)
- C^+ Trans. prob., Oscill. Strengths Th
 N^{2+} Trans. prob., Oscill. Strengths Th
 O^{3+} Trans. prob., Oscill. Strengths Th
198. K. M. Aggarwal, F. P. Keenan, K. D. Lawson
Energy levels and radiative rates for transitions in B-like to F-like Xe ions (Xe L–XLVI)
 At. Data Nucl. Data Tables 96, 123-270 (2010)

- Xe**^{45+–49+} Trans. prob., Oscill. Strengths Th
199. E. Landi, A. K. Bhatia
Atomic data and spectral line intensities for Ni XIV
 At. Data Nucl. Data Tables 96, 52-84 (2010)
- Ni**¹³⁺ Trans. prob., Oscill. Strengths Th
200. S. N. Nahar
Allowed and forbidden transition parameters for Fe XXII
 At. Data Nucl. Data Tables 96, 26-51 (2010)
- Fe**²¹⁺ Trans. prob., Oscill. Strengths Th
201. H.-C. Chi, H.-S. Chou
Theoretical oscillator strengths for spin-allowed electric-dipole transitions in Zn-like ions
 Phys. Rev. A 82, 032518 (2010)
- Zn** Trans. prob., Oscill. Strengths Th
Ge²⁺ Trans. prob., Oscill. Strengths Th
As³⁺ Trans. prob., Oscill. Strengths Th
Kr⁶⁺ Trans. prob., Oscill. Strengths Th
Nb¹¹⁺ Trans. prob., Oscill. Strengths Th
Mo¹²⁺ Trans. prob., Oscill. Strengths Th
202. J. M. Bridges, W. L. Wiese
Transition probability measurements for some strong and weak lines of N I
 Phys. Rev. A 82, 024502 (2010)
- N** Trans. prob., Oscill. Strengths Exp
203. G. Gaigalas, Z. Rudzikas, E. Gaidamauskas, P. Rynkun, A. Alkauskas
Peculiarities of spectroscopic properties of W²⁴⁺
 Phys. Rev. A 82, 014502 (2010)
- W**²⁴⁺ Trans. prob., Oscill. Strengths Th
204. R. K. Gangwar, L. Sharma, R. Srivastava, A. D. Stauffer
Electron-Impact excitation of argon: Cross sections of interest in plasma modeling
 Phys. Rev. A 81, 052707 (2010)
- Ar** Trans. prob., Oscill. Strengths Th
205. G. P. Gupta, A. Z. Msezane
Fine-Structure energy levels and radiative decay rates in Al-like vanadium
 Phys. Scr. 81, 045302 (2010)
- V**¹⁰⁺ Trans. prob., Oscill. Strengths Th
206. L.-H. Hao, G. Jiang, H.-J. Hou
Effects of valence-valence, core-valence, and core-core correlations on the fine-structure energy levels in Al-like ions
 Phys. Rev. A 81, 022502 (2010)
- Fe**¹³⁺ Trans. prob., Oscill. Strengths Th
Ni¹⁵⁺ Trans. prob., Oscill. Strengths Th
Se²¹⁺ Trans. prob., Oscill. Strengths Th
Kr²³⁺ Trans. prob., Oscill. Strengths Th
Zr²⁷⁺ Trans. prob., Oscill. Strengths Th
Mo²⁹⁺ Trans. prob., Oscill. Strengths Th
Xe⁴¹⁺ Trans. prob., Oscill. Strengths Th
Au⁶⁶⁺ Trans. prob., Oscill. Strengths Th

207. K. M. Aggarwal, F. P. Keenan, R. F. Heeter
Energy levels, radiative rates and electron impact excitation rates for transitions in Li-like N V, F VII, Ne VIII and Na IX
 Phys. Scr. 81, 015303 (2010)
- | | | |
|------------------------|---------------------------------|----|
| N⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| F⁶⁺ | Trans. prob., Oscill. Strengths | Th |
| Ne⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| Na⁸⁺ | Trans. prob., Oscill. Strengths | Th |
208. V. Jonauskas, R. Kisielius, A. Kynienė, S. Kučas, P. H. Norrington
Magnetic dipole transitions in 4d^N configurations of tungsten ions
 Phys. Rev. A 81, 012506 (2010)
- | | | |
|----------------------------|---------------------------------|----|
| W^{29+–37+} | Trans. prob., Oscill. Strengths | Th |
|----------------------------|---------------------------------|----|
209. A. Baclawski, J. Musielok
Measurements of transition probabilities for two N I infrared transitions and their application for diagnostics of low temperature plasmas
 Spectrochimica Acta, Part B 65, 113-119 (2010)
- | | | |
|----------|---------------------------------|-----|
| N | Trans. prob., Oscill. Strengths | Exp |
|----------|---------------------------------|-----|
210. S. Djeniže, A. Srećković, S. Bukvić
On the line intensity ratios of prominent Si II, Si III, and Si IV multiplets
 Spectrochimica Acta, Part B 65, 61-65 (2010)
- | | | |
|--------------------------|---------------------------------|-----|
| Si⁺ | Trans. prob., Oscill. Strengths | Exp |
| Si^{+–3+} | Trans. prob., Oscill. Strengths | Exp |
211. S. Karmakar, M. B. Das
Experimental lifetimes of some levels belonging to the 4p⁴5p configuration of Kr II using the cascade-photon-coincidence technique
 Eur. Phys. J. D 59, 361-365 (2010)
- | | | |
|-----------------------|---------------------------------|-----|
| Kr⁺ | Trans. prob., Oscill. Strengths | Exp |
|-----------------------|---------------------------------|-----|
212. A. E. Kingston, A. Hibbert
Transitions between the 3p⁶ns and 3p⁶mp states of Ti IV
 J. Phys. B 43, 165003 (2010)
- | | | |
|------------------------|---------------------------------|----|
| Ti³⁺ | Trans. prob., Oscill. Strengths | Th |
|------------------------|---------------------------------|----|
213. P. Quinet, V. Vinogradoff, P. Palmeri, É. Biémont
Radiative decay rates for W I, W II and W III allowed and forbidden transitions of interest for spectroscopic diagnostics in fusion plasmas
 J. Phys. B 43, 144003 (2010)
- | | | |
|--------------------------|---------------------------------|-----|
| W^{0+–2+} | Trans. prob., Oscill. Strengths | E/T |
|--------------------------|---------------------------------|-----|
214. U. I. Safronova, A. S. Safronova, W. R. Johnson
Relativistic many-body calculations of dielectronic satellite spectra created by autoionizing 1s2l2l' states in Li-like ions
 J. Phys. B 43, 144001 (2010)
- | | | |
|-------------------------|---------------------------------|----|
| Fe²³⁺ | Trans. prob., Oscill. Strengths | Th |
| Mo³⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| Pr⁵⁶⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁷¹⁺ | Trans. prob., Oscill. Strengths | Th |

215. I. L. Glukhov, E. A. Nekipelov, V. D. Ovsianikov

Blackbody-Induced decay, excitation and ionization rates for Rydberg states in hydrogen and helium atoms

J. Phys. B 43, 125002 (2010)

H	Trans. prob., Oscill. Strengths	Th
He	Trans. prob., Oscill. Strengths	Th

216. J. Singh, A. K. S. Jha, M. Mohan

Lifetime for the Ti X spectrum

J. Phys. B 43, 115005 (2010)

Ti⁹⁺	Trans. prob., Oscill. Strengths	Th
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217. H.-H. Kang, J.-G. Li, C.-Z. Dong, G. Gaigalas

The effect of hyperfine interaction on the lifetime of the 3s3p ³P₂ level of Mg-like ions

J. Phys. B 43, 095003 (2010)

Al⁺	Trans. prob., Oscill. Strengths	Th
Si²⁺	Trans. prob., Oscill. Strengths	Th
Ar⁶⁺	Trans. prob., Oscill. Strengths	Th
Ca⁸⁺	Trans. prob., Oscill. Strengths	Th
Fe¹⁴⁺	Trans. prob., Oscill. Strengths	Th
Cu¹⁷⁺	Trans. prob., Oscill. Strengths	Th
Zn¹⁸⁺	Trans. prob., Oscill. Strengths	Th
Br²³⁺	Trans. prob., Oscill. Strengths	Th
Ag³⁵⁺	Trans. prob., Oscill. Strengths	Th
I⁴¹⁺	Trans. prob., Oscill. Strengths	Th
Pr⁴⁷⁺	Trans. prob., Oscill. Strengths	Th
Gd⁵²⁺	Trans. prob., Oscill. Strengths	Th
Yb⁵⁸⁺	Trans. prob., Oscill. Strengths	Th
Lu⁵⁹⁺	Trans. prob., Oscill. Strengths	Th
Pt⁶⁶⁺	Trans. prob., Oscill. Strengths	Th

218. M. Andersson, Y.-M. Zou, R. Hutton, T. Brage

Hyperfine dependent lifetimes in Mg-like ions

J. Phys. B 43, 095001 (2010)

Mg Z= 12-17	Trans. prob., Oscill. Strengths	Th
Mg Z= 19-31	Trans. prob., Oscill. Strengths	Th
Mg	Trans. prob., Oscill. Strengths	Th
Al⁺	Trans. prob., Oscill. Strengths	Th
Si²⁺	Trans. prob., Oscill. Strengths	Th
P³⁺	Trans. prob., Oscill. Strengths	Th
S⁴⁺	Trans. prob., Oscill. Strengths	Th
Cl⁵⁺	Trans. prob., Oscill. Strengths	Th
K⁷⁺	Trans. prob., Oscill. Strengths	Th
Ca⁸⁺	Trans. prob., Oscill. Strengths	Th
Sc⁹⁺	Trans. prob., Oscill. Strengths	Th
Ti¹⁰⁺	Trans. prob., Oscill. Strengths	Th
V¹¹⁺	Trans. prob., Oscill. Strengths	Th
Cr¹²⁺	Trans. prob., Oscill. Strengths	Th
Mn¹³⁺	Trans. prob., Oscill. Strengths	Th
Fe¹⁴⁺	Trans. prob., Oscill. Strengths	Th
Co¹⁵⁺	Trans. prob., Oscill. Strengths	Th
Ni¹⁶⁺	Trans. prob., Oscill. Strengths	Th
Cu¹⁷⁺	Trans. prob., Oscill. Strengths	Th
Zn¹⁸⁺	Trans. prob., Oscill. Strengths	Th
Ga¹⁹⁺	Trans. prob., Oscill. Strengths	Th

219. H. Lundberg, L. Engström, H. Hartman, H. Nilsson, P. Palmeri, P. Quinet, É. Biémont
Lifetime measurements and transition probabilities in Mo II
 J. Phys. B 43, 085004 (2010)
- | | | |
|-----------------------|---------------------------------|-----|
| Mo⁺ | Trans. prob., Oscill. Strengths | E/T |
|-----------------------|---------------------------------|-----|
220. R. Karpuškieñė, O. Rancova, P. Bogdanovich
An ab initio study of the spectral properties of W II
 J. Phys. B 43, 085002 (2010)
- | | | |
|----------------------|---------------------------------|----|
| W⁺ | Trans. prob., Oscill. Strengths | Th |
|----------------------|---------------------------------|----|
221. J. A. Ludlow, C. P. Ballance, S. D. Loch, M. S. Pindzola
Breit-Pauli R-matrix electron-impact excitation calculations along the argon isonuclear sequence
 J. Phys. B 43, 074029 (2010)
- | | | |
|-----------------------------|---------------------------------|----|
| Ar³⁺⁻⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| Ar⁷⁺⁻⁸⁺ | Trans. prob., Oscill. Strengths | Th |
| Ar¹⁰⁺⁻¹⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| Ar¹⁷⁺ | Trans. prob., Oscill. Strengths | Th |
222. U. I. Safronova, A. S. Safronova
Wavelengths and transition rates for nl–n'l' transitions in Be-, B-, Mg-, Al-, Ca-, Zn-, Ag- and Yb-like tungsten ions
 J. Phys. B 43, 074026 (2010)
- | | | |
|------------------------|---------------------------------|----|
| W⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| W²⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁴⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁵⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁶¹⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁶²⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁶⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁷⁰⁺ | Trans. prob., Oscill. Strengths | Th |
223. U. I. Safronova, M. S. Safronova
Relativistic many-body calculations of the oscillator strengths, transition rates and polarizabilities in Zn-like ions
 J. Phys. B 43, 074025 (2010)
- | | | |
|---------------------|---------------------------------|----|
| Zn Z= 32-100 | Trans. prob., Oscill. Strengths | Th |
|---------------------|---------------------------------|----|
224. J. Reader
Spectrum and energy levels of five-times ionized molybdenum, Mo VI
 J. Phys. B 43, 074024 (2010)
- | | | |
|------------------------|---------------------------------|----|
| Mo⁵⁺ | Trans. prob., Oscill. Strengths | Th |
|------------------------|---------------------------------|----|
225. P. Jönsson, J. Bieroñ
Relativistic configuration interaction calculations of energy levels, isotope shifts, hyperfine structures, and transition rates in the 2s²2p²–2s2p³ transition array for the carbon-like sequence
 J. Phys. B 43, 074023 (2010)
- | | | |
|-------------------------|---------------------------------|----|
| N⁺ | Trans. prob., Oscill. Strengths | Th |
| O²⁺ | Trans. prob., Oscill. Strengths | Th |
| F³⁺ | Trans. prob., Oscill. Strengths | Th |
| Ne⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| Ti¹⁶⁺ | Trans. prob., Oscill. Strengths | Th |

226. Y. Ishikawa, J. A. Santana, E. Träbert
Relativistic multireference many-body perturbation theory for open-shell ions with multiple valence shell electrons: The transition rates and lifetimes of the excited levels in chlorinelike Fe X
 J. Phys. B 43, 074022 (2010)
- | | | |
|------------------------|---------------------------------|----|
| Fe⁹⁺ | Trans. prob., Oscill. Strengths | Th |
|------------------------|---------------------------------|----|
227. C. Froese Fischer
Towards accurate transition data for 3p², 3p³, 3p⁴ levels of Fe, Co and Ni ions
 J. Phys. B 43, 074020 (2010)
- | | | |
|--------------------|---------------------------------|----|
| Si Z= 26-28 | Trans. prob., Oscill. Strengths | Th |
| S Z= 26-28 | Trans. prob., Oscill. Strengths | Th |
| P Z= 26-28 | Trans. prob., Oscill. Strengths | Th |
228. M. H. Chen, K. T. Cheng
A large-scale relativistic configuration-interaction approach: Application to the 4s²-4s4p transition energies and E1 rates for Zn-like ions
 J. Phys. B 43, 074019 (2010)
- | | | |
|--------------------|---------------------------------|----|
| Zn Z= 30-92 | Trans. prob., Oscill. Strengths | Th |
|--------------------|---------------------------------|----|
229. J.-F. Wyart
Interpretation of the odd parity energy levels in the spectrum of neutral tungsten
 J. Phys. B 43, 074018 (2010)
- | | | |
|----------|---------------------------------|----|
| W | Trans. prob., Oscill. Strengths | Th |
|----------|---------------------------------|----|
230. J.-G. Li, P. Jönsson, C.-Z. Dong, G. Gaigalas
Two-Electron-One-Photon M1 and E2 transitions between the states of the 2p³ and 2s²2p odd configurations for B-like ions with 18 ≤ Z ≤ 92
 J. Phys. B 43, 035005 (2010)
- | | | |
|-------------------------|---------------------------------|----|
| Ar¹³⁺ | Trans. prob., Oscill. Strengths | Th |
| Fe²¹⁺ | Trans. prob., Oscill. Strengths | Th |
| Kr³¹⁺ | Trans. prob., Oscill. Strengths | Th |
| Mo³⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| Xe⁴⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| Eu⁵⁸⁺ | Trans. prob., Oscill. Strengths | Th |
| W⁶⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| Hg⁷⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| U⁸⁷⁺ | Trans. prob., Oscill. Strengths | Th |
231. J. R. Fuhr, W. L. Wiese
Tables of atomic transition probabilities for beryllium and boron
 J. Phys. Chem. Ref. Data 39, 013101 (2010)
- | | | |
|---------------------------|---------------------------------|-----|
| Be⁰⁺⁻²⁺ | Trans. prob., Oscill. Strengths | E/T |
| B⁰⁺⁻³⁺ | Trans. prob., Oscill. Strengths | E/T |
232. X.-Z. Shen, P. Yuan, J. Liu
Electric-Dipole allowed (E1) and forbidden (E2, M1 and M2) transition probabilities of 4f for N⁺
 Chin. Phys. B 19, 053101 (2010)
- | | | |
|----------------------|---------------------------------|----|
| N⁺ | Trans. prob., Oscill. Strengths | Th |
|----------------------|---------------------------------|----|
233. D. Dodt, A. Dinklage, K. Bartschat, O. Zatsarinny
Validation of atomic data using a plasma discharge
 New J. Phys. 12, 073018 (2010)

	Ne	Trans. prob., Oscill. Strengths	E/T
234.	J.-G. Li, C.-Z. Dong		
	Interference Effects in Hyperfine Induced $2s2p\ ^3P_0, ^3P_2 \rightarrow 2s^2\ ^1S_0$ Transitions of Be-like Ions		
	Plasma Sci. Technol. 12, 364-368 (2010)		
	C²⁺	Trans. prob., Oscill. Strengths	Th
	N³⁺	Trans. prob., Oscill. Strengths	Th
	F⁵⁺	Trans. prob., Oscill. Strengths	Th
	Si¹⁰⁺	Trans. prob., Oscill. Strengths	Th
	Ar¹⁴⁺	Trans. prob., Oscill. Strengths	Th
	Ti¹⁸⁺	Trans. prob., Oscill. Strengths	Th
	Fe²²⁺	Trans. prob., Oscill. Strengths	Th
	Zn²⁶⁺	Trans. prob., Oscill. Strengths	Th
	Rb³³⁺	Trans. prob., Oscill. Strengths	Th
	Rh⁴¹⁺	Trans. prob., Oscill. Strengths	Th
	Xe⁵⁰⁺	Trans. prob., Oscill. Strengths	Th
235.	E. Landi, P. R. Young		
	New Fe IX line identifications using Solar and Heliospheric Observatory/Solar Ultraviolet Measurement of Emitted Radiation and Hinode/EIS		
	Astrophys. J. 707, 1191-1200 (2009)		
	Fe⁸⁺	Trans. prob., Oscill. Strengths	Th
236.	M. A. Bautista, P. Quinet, P. Palmeri, N. R. Badnell, J. Dunn, N. Arav		
	Radiative transition rates and collision strengths for Si II		
	Astron. Astrophys. 508, 1527-1537 (2009)		
	Si⁺	Trans. prob., Oscill. Strengths	Th
237.	J. Gurell, H. Hartman, R. Blackwell-Whitehead, H. Nilsson, E. Bäckström, L. O. Norlin, P. Royen, S. Mannervik		
	The FERRUM project: Transition probabilities for forbidden lines in [Fe II] and experimental metastable lifetimes		
	Astron. Astrophys. 508, 525-529 (2009)		
	Fe⁺	Trans. prob., Oscill. Strengths	Exp
238.	G. Del Zanna		
	Benchmarking atomic data for astrophysics: Fe VIII EUV lines		
	Astron. Astrophys. 508, 513-524 (2009)		
	Fe⁷⁺	Trans. prob., Oscill. Strengths	Th
239.	G. Del Zanna		
	Benchmarking atomic data for astrophysics: Fe VII and other cool lines observed by Hinode EIS		
	Astron. Astrophys. 508, 501-511 (2009)		
	Fe⁶⁺	Trans. prob., Oscill. Strengths	Th
240.	F. Castelli, R. L. Kurucz, S. Hubrig		
	New identified (³H)4d-(³H)4f transitions of Fe II from UVES spectra of HR 6000 and 46 Aquilae		
	Astron. Astrophys. 508, 401-408 (2009)		
	Fe⁺	Trans. prob., Oscill. Strengths	Th

250. K. M. Aggarwal, F. P. Keenan, R. F. Heeter
Energy levels, radiative rates and electron impact excitation rates for transitions in He-like N VI, F VIII and Na X
 Phys. Scr. 80, 045301 (2009)
- | | | |
|------------------------|---------------------------------|----|
| N⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| F⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| Na⁹⁺ | Trans. prob., Oscill. Strengths | Th |
251. L. Głowacki, J. Migdalek
Relativistic configuration-interaction oscillator strengths for lowest E1 transitions in silver and gold isoelectronic sequences
 Phys. Rev. A 80, 042505 (2009)
- | | | |
|--------------------|---------------------------------|----|
| Ag Z= 47-57 | Trans. prob., Oscill. Strengths | Th |
| Au Z= 79-83 | Trans. prob., Oscill. Strengths | Th |
252. S. S. Tayal
Transition rates of electric-dipole-forbidden M1, E2, and M2 transitions in iron ions Fe¹³⁺ and Fe¹¹⁺
 Phys. Rev. A 80, 032512 (2009)
- | | | |
|-------------------------|---------------------------------|----|
| Fe¹¹⁺ | Trans. prob., Oscill. Strengths | Th |
| Fe¹³⁺ | Trans. prob., Oscill. Strengths | Th |
253. L. Zhuo, B. C. Gou, J. J. Zhu
Inner-Shell excited quartet states in Li-like O⁵⁺ and Ne⁷⁺ ions
 Eur. Phys. J. D 54, 1-8 (2009)
- | | | |
|------------------------|---------------------------------|----|
| O⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| Ne⁷⁺ | Trans. prob., Oscill. Strengths | Th |
254. D. C. Griffin, C. P. Ballance
Relativistic radiatively damped R-matrix calculations of the electron-impact excitation of helium-like iron
 J. Phys. B 42, 235201 (2009)
- | | | |
|-------------------------|---------------------------------|----|
| Fe²⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| Kr³⁴⁺ | Trans. prob., Oscill. Strengths | Th |
255. G. Y. Liang, A. D. Whiteford, N. R. Badnell
R-Matrix inner-shell electron-impact excitation of the Na-like iso-electronic sequence
 J. Phys. B 42, 225002 (2009)
- | | | |
|-------------------------|---------------------------------|----|
| Si³⁺ | Trans. prob., Oscill. Strengths | Th |
| Ar⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| Ti¹¹⁺ | Trans. prob., Oscill. Strengths | Th |
| Zn¹⁹⁺ | Trans. prob., Oscill. Strengths | Th |
256. M. Raineri, M. Gallardo, S. Padilla, J. Reyna Almandos
New energy levels, lifetimes and transition probabilities in four times ionized xenon (Xe V)
 J. Phys. B 42, 205004 (2009)
- | | | |
|------------------------|---------------------------------|----|
| Xe⁴⁺ | Trans. prob., Oscill. Strengths | Th |
|------------------------|---------------------------------|----|
257. H.-H. Kang, J.-G. Li, C.-Z. Dong, P. Jönsson, G. Gaigalas
Hyperfine quenching of the 3s3p ³P₀ level in Mg-like ions
 J. Phys. B 42, 195002 (2009)
- | | | |
|--------------------|---------------------------------|----|
| Mg Z= 12-80 | Trans. prob., Oscill. Strengths | Th |
|--------------------|---------------------------------|----|

258. V. F. Tarasov
Multipole matrix element $\langle n'l|r^\beta|n'l' \rangle_\nu$ for H-like atoms, their asymptotics and applications (as $\beta = 1, n \leq 4, n' \leq 10$)
 Int. J. Mod. Phys. B 23, 2041-2067 (2009)
- H Z= 1-100** Trans. prob., Oscill. Strengths Th
259. J. He, Q.-G. Zhang, Q.-D. Chen
The resonance escape factor and density spatial distribution of Li 670.970 nm resonance lines
 Mod. Phys. Lett. B 23, 1189-1197 (2009)
- Li** Trans. prob., Oscill. Strengths Th
260. R. Centeno, H. Socas-Navarro
A new approach to the solar oxygen abundance problem
 Astrophys. J. 682, L61-L64 (2008)
- Fe** Trans. prob., Oscill. Strengths Exp
261. F. T. Jin, J. L. Zeng, J. M. Yuan
Detailed diagnostics of a laser produced aluminum plasma by the K_α satellites
 J. Quant. Spectrosc. Radiat. Transfer 109, 2707-2714 (2008)
- Al⁹⁺** Trans. prob., Oscill. Strengths Th
262. G. Buica, T. Nakajima
Two-, three-, and four-photon ionization of Mg in the circularly and linearly polarized laser fields: Comparative study using the Hartree-Fock and model potentials
 J. Quant. Spectrosc. Radiat. Transfer 109, 107-118 (2008)
- Mg** Trans. prob., Oscill. Strengths Th
263. M. F. Gu
The flexible atomic code
 Can. J. Phys. 86, 675-689 (2008)
- Fe¹⁹⁺** Trans. prob., Oscill. Strengths Th
264. C. Gao, J. L. Zeng
Spectrally resolved and Rosseland and Planck mean opacities of iron plasmas at temperatures above 100 eV: A systematic study
 Phys. Rev. E 78, 046407 (2008)
- Fe¹⁷⁺** Trans. prob., Oscill. Strengths Th
265. M. F. Hasoğlu, D. Nikolić, T. W. Gorczyca, S. T. Manson, M. H. Chen, N. R. Badnell
Nonmonotonic behavior as a function of nuclear charge of the K-shell Auger and radiative rates and fluorescence yields along the $1s2s^22p^3$ isoelectronic sequence
 Phys. Rev. A 78, 032509 (2008)
- C Z= 6-30** Trans. prob., Oscill. Strengths Th
266. M. Maslov, M. J. Brunger, P. J. O. Teubner, O. Zatsarinny, K. Bartschat, D. Fursa, I. Bray, R. P. McEachran
Electron-Impact excitation of the $(5d^{10}6s)^2S_{1/2} \rightarrow (5d^{10}6p)^2P_{1/2,3/2}$ resonance transitions in gold atoms
 Phys. Rev. A 77, 062711 (2008)
- Au** Trans. prob., Oscill. Strengths Th

267. B. L. Sharp, P. S. Goodall, L. M. Ignjatovic, H.-G. Teng
Coincidence laser spectroscopy (CLS) for the detection of ions in ICP-MS (ICP-MS-CLS). A feasibility study
 J. Anal. At. Spectrom. 22, 1447-1470 (2007)
- | | | |
|-----------------------|---------------------------------|----|
| Fe⁺ | Trans. prob., Oscill. Strengths | Th |
| Tc⁺ | Trans. prob., Oscill. Strengths | Th |
| Pm⁺ | Trans. prob., Oscill. Strengths | Th |
| Pu⁺ | Trans. prob., Oscill. Strengths | Th |
268. Z.-S. Jiang, S. Kar, Y. K. Ho
Wavelengths for $2pnp\ ^1P^e \rightarrow 2pnd\ ^1D^\circ$ and $2pnp\ ^3P^e \rightarrow 2pnd\ ^3D^\circ$ Transitions in Li II, Be III, B IV, C V Using Correlated Exponential Wave Functions
 J. Quant. Spectrosc. Radiat. Transfer 113, 75-81 (2012)
- | | | |
|------------------|----------------------------|----|
| He Z= 3-6 | Energy Levels, Wavelengths | Th |
|------------------|----------------------------|----|
269. L. Liang, W.-J. Gao, C. Zhou, L. Zhang
Calculation of Fine-Structure Energy Levels and Autoionizing Widths for the Magnesium-like Ions Ti XI and Fe XV
 At. Data Nucl. Data Tables 98, 63-73 (2012)
- | | | |
|-------------------------|----------------------------|----|
| Ti¹⁰⁺ | Energy Levels, Wavelengths | Th |
| Fe¹⁴⁺ | Energy Levels, Wavelengths | Th |
270. I. Murakami, D. Kato, M. Kato, H. A. Sakaue, T. Kato, X.-B. Ding, S. Morita, M. Kitajima, F. Koike, N. Nakamura, N. Sakamoto, A. Sasaki, I. Skobelev, H. Tsuchida, A. Ulantsev, T. Watanabe, N. Yamamoto
Database and Related Activities in Japan
 AIP Conf. Proc. 1344, 96-106 (2011)
- | | | |
|------------------------|----------------------------|-----|
| W²⁶⁺ | Energy Levels, Wavelengths | Exp |
|------------------------|----------------------------|-----|
271. A. Kramida
Recent Developments in the NIST Atomic Databases
 AIP Conf. Proc. 1344, 81-95 (2011)
- | | | |
|------------------------|----------------------------|-----|
| Na⁺ | Energy Levels, Wavelengths | E/T |
| K¹⁶⁺ | Energy Levels, Wavelengths | E/T |
| Fe | Energy Levels, Wavelengths | E/T |
| Hg | Energy Levels, Wavelengths | E/T |
272. P. Oliver, A. Hibbert
Detailed Atomic Structure of Neutral and Near-Neutral Systems
 AIP Conf. Proc. 1344, 70-77 (2011)
- | | | |
|-----------------------|----------------------------|-----|
| Cl | Energy Levels, Wavelengths | E/T |
| Sn⁺ | Energy Levels, Wavelengths | E/T |
273. A. R. Foster, P. Testa
Fe IX Calculations for the Solar Dynamics Observatory
 Astrophys. J. 740, L52 (2011)
- | | | |
|------------------------|----------------------------|----|
| Fe⁸⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
274. N. Nakamura, E. Watanabe, H. A. Sakaue, D. Kato, I. Murakami, N. Yamamoto, H. Hara, T. Watanabe
Intensity Ratio of Density-Sensitive Lines in Fe Ions Observed with a Well-Defined Laboratory Plasma
 Astrophys. J. 739, 17 (2011)

	Fe¹²⁺	Energy Levels, Wavelengths	Exp
275.	M. F. Gu, P. Beiersdorfer, J. K. Lepson Emission Line Spectra of Al IV–Al XI in the Extreme Ultraviolet Region 40–170 Å Astrophys. J. 732, 91 (2011)		
	Al^{3+–10+}	Energy Levels, Wavelengths	Exp
276.	J. D. Gillaspy, T. Lin, L. Tedesco, J. N. Tan, J. M. Pomeroy, J. M. Laming, N. Brickhouse, G.-X. Chen, E. Silver Fe XVII X-ray Line Ratios for Accurate Astrophysical Plasma Diagnostics Astrophys. J. 728, 132 (2011)		
	Fe¹⁶⁺	Energy Levels, Wavelengths	Exp
277.	P. Vingerhoets, K. T. Flanagan, J. Billowes, M. L. Bissell, K. Blaum, B. Cheal, M. De Rydt, D. H. Forest, Ch. Geppert, M. Honma, M. Kowalska, J. Krämer, K. Kreim, A. Krieger, R. Neugart, G. Neyens, W. Nörtershäuser, J. Papuga, T. J. Procter, M. M. Rajabali, R. Sánchez, H. H. Stroke, D. T. Yordanov Magnetic and Quadrupole Moments of Neutron Deficient ^{58–62}Cu Isotopes Phys. Lett. B 703, 34-39 (2011)		
	Cu	Energy Levels, Wavelengths	Exp
278.	G. Del Zanna Benchmarking Atomic Data for Astrophysics: Fe XIII EUV Lines Astron. Astrophys. 533, A12 (2011)		
	Fe¹²⁺	Energy Levels, Wavelengths	Exp
279.	K. Yüce, F. Castelli, S. Hubrig Wavelengths and Oscillator Strengths of Xe II from the UVES Spectra of Four HgMn Stars Astron. Astrophys. 528, A37 (2011)		
	Xe⁺	Energy Levels, Wavelengths	Exp
280.	G. Y. Liang, N. R. Badnell R-Matrix Electron-Impact Excitation Data for the Li-like Iso-Electronic Sequence Including Auger and Radiation Damping Astron. Astrophys. 528, A69 (2011)		
	Li Z= 4-36	Energy Levels, Wavelengths	Th
281.	P. Palmeri, P. Quinet, C. Mendoza, M. A. Bautista, J. García, M. C. Witthoef, T. R. Kallman Atomic Decay Data for Modeling the Al K Lines Astron. Astrophys. 525, A59 (2011)		
	Al^{2+–11+}	Energy Levels, Wavelengths	Th
282.	P. R. Young, U. Feldman, A. Lobel Forbidden and Intercombination Lines of RR Telescopii: Wavelength Measurements and Energy Levels Astrophys. J., Suppl. Ser. 196, 23 (2011)		
	C⁺	Energy Levels, Wavelengths	Exp
	N^{+–2+}	Energy Levels, Wavelengths	Exp
	N^{+–3+}	Energy Levels, Wavelengths	Exp
	O⁺	Energy Levels, Wavelengths	Exp
	O³⁺	Energy Levels, Wavelengths	Exp
	O^{3+–4+}	Energy Levels, Wavelengths	Exp

- | | | |
|----------------------------|----------------------------|-----|
| Ne ²⁺⁻⁴⁺ | Energy Levels, Wavelengths | Exp |
| Na ³⁺⁻⁵⁺ | Energy Levels, Wavelengths | Exp |
| Mg ⁴⁺⁻⁵⁺ | Energy Levels, Wavelengths | Exp |
| Al ⁵⁺ | Energy Levels, Wavelengths | Exp |
| Si ¹⁺⁻³⁺ | Energy Levels, Wavelengths | Exp |
| P ³⁺ | Energy Levels, Wavelengths | Exp |
| S ³⁺⁻⁴⁺ | Energy Levels, Wavelengths | Exp |
| Cl ³⁺ | Energy Levels, Wavelengths | Exp |
| Ar ²⁺⁻⁴⁺ | Energy Levels, Wavelengths | Exp |
| K ³⁺⁻⁵⁺ | Energy Levels, Wavelengths | Exp |
| Ca ⁴⁺⁻⁶⁺ | Energy Levels, Wavelengths | Exp |
283. A. P. Thorne, J. C. Pickering, J. Semeniuk
The Spectrum and Term Analysis of V I
 Astrophys. J., Suppl. Ser. 192, 11 (2011)
- | | | |
|----------|----------------------------|-----|
| V | Energy Levels, Wavelengths | E/T |
|----------|----------------------------|-----|
284. J. Yatsurugi, E. Watanabe, H. Ohashi, H. A. Sakaue, N. Nakamura
EUV Spectroscopy of Highly Charged Ions with High- and Low-Energy EBITs
 Phys. Scr. T144, 014031 (2011)
- | | | |
|------------------------------|----------------------------|-----|
| Sn ¹⁸⁺ | Energy Levels, Wavelengths | Exp |
| Sn ¹⁸⁺⁻²¹⁺ | Energy Levels, Wavelengths | Exp |
| Sn ¹⁹⁺ | Energy Levels, Wavelengths | Exp |
| Xe ²²⁺⁻²⁵⁺ | Energy Levels, Wavelengths | Exp |
285. H. Ohashi, S. Suda, H. Tanuma, S. Fujioka, H. Nishimura, K. Nishihara, H. A. Sakaue, N. Nakamura, S. Ohtani
EUV Emission Spectra of Iron Ions Following Charge Exchange Collisions with He
 Phys. Scr. T144, 014030 (2011)
- | | | |
|-----------------------------|----------------------------|-----|
| Fe ³⁺⁻¹⁶⁺ | Energy Levels, Wavelengths | Exp |
|-----------------------------|----------------------------|-----|
286. D. F. A. Winters, Th. Kühl, D. H. Schneider, P. Indelicato, R. Reuschl, R. Schuch, E. Lindroth, Th. Stöhlker
Laser Spectroscopy of the (1s²2s2p) ³P₀-³P₁ Level Splitting in Be-like Krypton
 Phys. Scr. T144, 014013 (2011)
- | | | |
|--------------------------|----------------------------|----|
| Kr ³²⁺ | Energy Levels, Wavelengths | Th |
|--------------------------|----------------------------|----|
287. A. Komatsu, J. Sakoda, N. Nakamura, H. A. Sakaue, X.-B. Ding, D. Kato, I. Murakami, F. Koike
Visible Spectroscopy of Highly Charged Tungsten Ions
 Phys. Scr. T144, 014012 (2011)
- | | | |
|-------------------------|----------------------------|-----|
| W ²⁶⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
288. J. Sakoda, A. Komatsu, H. Kikuchi, N. Nakamura
Visible Spectroscopy of Rh-like Ions
 Phys. Scr. T144, 014011 (2011)
- | | | |
|--------------------------|----------------------------|-----|
| Xe ⁹⁺ | Energy Levels, Wavelengths | Exp |
| Ba ¹¹⁺ | Energy Levels, Wavelengths | Exp |
289. F. Hu, J.-M. Yang, G. Jiang, C.-K. Wang, X.-F. Zhao
Wavelengths, Oscillator Strengths and Radiative Transition Rates for K α Lines in Titanium X-ray Spectra
 Phys. Scr. T144, 014006 (2011)
- | | | |
|------------------------------|----------------------------|----|
| Ti ¹³⁺⁻²⁰⁺ | Energy Levels, Wavelengths | Th |
|------------------------------|----------------------------|----|

290. Y. Sun, F. Chen, B. C. Gou
Energy Levels, Auger Branching Ratios, and Radiative Rates of the Core-Excited States of B-like Carbon
 J. Chem. Phys. 135, 124309 (2011)
- | | | |
|----------------------|----------------------------|-----|
| C⁺ | Energy Levels, Wavelengths | E/T |
|----------------------|----------------------------|-----|
291. K. L. Sharkey, S. Bubin, L. Adamowicz
Refinement of the Experimental Energy Levels of Higher ²D Rydberg States of the Lithium Atom with Very Accurate Quantum Mechanical Calculations
 J. Chem. Phys. 134, 194114 (2011)
- | | | |
|-----------|----------------------------|-----|
| Li | Energy Levels, Wavelengths | E/T |
|-----------|----------------------------|-----|
292. S.-Z. Huang, Q.-F. Sun
Higher Order Two- and Three-Body Dispersion Coefficients for Alkali Isoelectronic Sequences by a Variationally Stable Procedure
 J. Chem. Phys. 134, 144110 (2011)
- | | | |
|-----------------------|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
| Be⁺ | Energy Levels, Wavelengths | Th |
| Na | Energy Levels, Wavelengths | Th |
| Mg⁺ | Energy Levels, Wavelengths | Th |
| K | Energy Levels, Wavelengths | Th |
| Ca⁺ | Energy Levels, Wavelengths | Th |
| Rb | Energy Levels, Wavelengths | Th |
| Sr⁺ | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
| Ba⁺ | Energy Levels, Wavelengths | Th |
293. F. W. King, D. Quicker, J. Langer
Compact Wave Functions for the Beryllium Isoelectronic Series, Li⁻ to Ne⁶⁺: A Standard Hylleraas Approach
 J. Chem. Phys. 134, 124114 (2011)
- | | | |
|-------------------|----------------------------|----|
| Be Z= 3-10 | Energy Levels, Wavelengths | Th |
|-------------------|----------------------------|----|
294. F. Hu, G. Jiang, J. M. Yang, J. Y. Zhang, X. F. Zhao
Energy Levels and Oscillator Strength of Ni XXIII
 Acta Phys. Pol. A 120-3, 429-437 (2011)
- | | | |
|-------------------------|----------------------------|----|
| Ni²²⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
295. T. Nandi, A. P. Mishra, B. N. Jagatap
Observation of Transitions Involving Core-Excited States in Ar III and Ar IV and High-Lying Singly Excited States in Ar I–Ar IV
 J. Quant. Spectrosc. Radiat. Transfer 112, 2771-2778 (2011)
- | | | |
|---------------------------|----------------------------|-----|
| Ar⁰⁺⁻⁴⁺ | Energy Levels, Wavelengths | Exp |
|---------------------------|----------------------------|-----|
296. E. E. Farias, M. Raineri, M. Gallardo, J. Reyna Almandos, G. H. Cavalcanti, F. O. Borges, A. G. Trigueiros
New Energy Levels and Transitions for the 4s4p5p Configuration in Kr VI
 J. Quant. Spectrosc. Radiat. Transfer 112, 2463-2468 (2011)
- | | | |
|------------------------|----------------------------|-----|
| Kr⁵⁺ | Energy Levels, Wavelengths | E/T |
|------------------------|----------------------------|-----|
297. V. A. Yerokhin, K. Pachucki, Z. Harman, C. H. Keitel
QED Theory of the Nuclear Magnetic Shielding in Hydrogenlike Ions
 Phys. Rev. Lett. 107, 043004 (2011)

- | | | |
|-------------------------|----------------------------|-----|
| H Z= 8-92 | Energy Levels, Wavelengths | Exp |
| O⁷⁺ | Energy Levels, Wavelengths | Exp |
| Ca¹⁹⁺ | Energy Levels, Wavelengths | Exp |
| Ge³¹⁺ | Energy Levels, Wavelengths | Exp |
| Xe⁵³⁺ | Energy Levels, Wavelengths | Exp |
| Bi⁸²⁺ | Energy Levels, Wavelengths | Exp |
298. M. M. Sant'Anna, A. S. Schlachter, G. Öhrwall, W. C. Stolte, D. W. Lindle, B. M. McLaughlin
K-Shell X-ray Spectroscopy of Atomic Nitrogen
 Phys. Rev. Lett. 107, 033001 (2011)
- | | | |
|----------------------|----------------------------|-----|
| N⁺ | Energy Levels, Wavelengths | Exp |
|----------------------|----------------------------|-----|
299. S. Sturm, A. Wagner, B. Schabinger, J. Zatorski, Z. Harman, W. Quint, G. Werth, C. H. Keitel, K. Blaum
g Factor of Hydrogenlike ²⁸Si¹³⁺
 Phys. Rev. Lett. 107, 023002 (2011)
- | | | |
|-------------------------|----------------------------|-----|
| Si¹³⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
300. C. J. Sansonetti, C. E. Simien, J. D. Gillaspay, J. N. Tan, S. M. Brewer, R. C. Brown, S.-J. Wu, J. V. Porto
Absolute Transition Frequencies and Quantum Interference in a Frequency Comb Based Measurement of the ^{6,7}Li D Lines
 Phys. Rev. Lett. 107, 023001 (2011)
- | | | |
|-----------|----------------------------|-----|
| Li | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
301. J. C. Berengut, V. A. Dzuba, V. V. Flambaum, A. Ong
Electron-Hole Transitions in Multiply Charged Ions for Precision Laser Spectroscopy and Searching for Variations in α
 Phys. Rev. Lett. 106, 210802 (2011)
- | | | |
|-----------------------------|----------------------------|----|
| W⁷⁺⁻⁸⁺ | Energy Levels, Wavelengths | Th |
| Ir¹⁶⁺⁻¹⁷⁺ | Energy Levels, Wavelengths | Th |
302. E. Landi
Atomic Data and Spectral Line Intensities for Fe XV
 At. Data Nucl. Data Tables 97, 587-647 (2011)
- | | | |
|-------------------------|----------------------------|-----|
| Fe¹⁴⁺ | Energy Levels, Wavelengths | E/T |
|-------------------------|----------------------------|-----|
303. S. S. Tayal
Transition Probabilities and Oscillator Strengths of E1 Transitions in Fe XII and Fe XIV
 At. Data Nucl. Data Tables 97, 481-566 (2011)
- | | | |
|-------------------------|----------------------------|----|
| Fe¹¹⁺ | Energy Levels, Wavelengths | Th |
| Fe¹³⁺ | Energy Levels, Wavelengths | Th |
304. E. P. Ivanova
Transition Probabilities for 5s-5p, 5p-5d, 4f-5d, and 5d-5f Transitions in Ag-like Ions with Z = 50-86
 At. Data Nucl. Data Tables 97, 1-22 (2011)
- | | | |
|--------------------|----------------------------|----|
| Ag Z= 50-86 | Energy Levels, Wavelengths | Th |
|--------------------|----------------------------|----|
305. L. Zhuo, B.-C. Gou, F. Wang
Energies and Auger Widths of the High-Lying Double-Excited States for Be-like Neon
 Can. J. Phys. 89, 697-702 (2011)

- | | | | |
|--|------------------------|----------------------------|----|
| | Ne⁶⁺ | Energy Levels, Wavelengths | Th |
|--|------------------------|----------------------------|----|
306. E. Träbert, J. Clementson, P. Beiersdorfer, J. A. Santana, Y. Ishikawa
Measurements and Calculations of Zn-like Heavy Ions: An Update
 Can. J. Phys. 89, 639-645 (2011)
- | | | | |
|--|-------------------------|----------------------------|-----|
| | Yb⁴⁰⁺ | Energy Levels, Wavelengths | E/T |
| | W⁴⁴⁺ | Energy Levels, Wavelengths | E/T |
| | Os⁴⁶⁺ | Energy Levels, Wavelengths | E/T |
| | Pt⁴⁸⁺ | Energy Levels, Wavelengths | E/T |
| | Au⁴⁹⁺ | Energy Levels, Wavelengths | E/T |
| | Pb⁵²⁺ | Energy Levels, Wavelengths | E/T |
| | Bi⁵³⁺ | Energy Levels, Wavelengths | E/T |
| | U⁶²⁺ | Energy Levels, Wavelengths | E/T |
307. A. T. Graf, M. J. May, P. Beiersdorfer, J. L. Terry
A Visible Spectral Survey from the Alcator C-Mod Tokamak
 Can. J. Phys. 89, 825 (2011)
- | | | | |
|--|---------------------------|----------------------------|-----|
| | B^{+−2+} | Energy Levels, Wavelengths | Exp |
| | B⁴⁺ | Energy Levels, Wavelengths | Exp |
| | C^{+−2+} | Energy Levels, Wavelengths | Exp |
| | N^{+−2+} | Energy Levels, Wavelengths | Exp |
| | O^{+−3+} | Energy Levels, Wavelengths | Exp |
| | F^{+−2+} | Energy Levels, Wavelengths | Exp |
| | Ne | Energy Levels, Wavelengths | Exp |
| | Na⁹⁺ | Energy Levels, Wavelengths | Exp |
| | Al^{+−2+} | Energy Levels, Wavelengths | Exp |
| | Si^{0+−1+} | Energy Levels, Wavelengths | Exp |
| | Cl^{+−2+} | Energy Levels, Wavelengths | Exp |
| | Ar^{0+−2+} | Energy Levels, Wavelengths | Exp |
| | Ar⁹⁺ | Energy Levels, Wavelengths | Exp |
| | Ti | Energy Levels, Wavelengths | Exp |
| | Ti²⁺ | Energy Levels, Wavelengths | Exp |
| | Fe^{0+−2+} | Energy Levels, Wavelengths | Exp |
| | Cu | Energy Levels, Wavelengths | Exp |
| | Cu²⁺ | Energy Levels, Wavelengths | Exp |
| | Mo | Energy Levels, Wavelengths | Exp |
| | W | Energy Levels, Wavelengths | Exp |
| | D | Energy Levels, Wavelengths | Exp |
308. G. C. Osborne, A. S. Safronova, V. L. Kantsyrev, U. I. Safronova, P. Beiersdorfer, K. M. Williamson, M. E. Weller, I. Shrestha
Spectroscopic Analysis and Modeling of Tungsten EBIT and Z-Pinch Plasma Experiments
 Can. J. Phys. 89, 599-608 (2011)
- | | | | |
|--|----------------------------|----------------------------|-----|
| | W^{42+−47+} | Energy Levels, Wavelengths | Exp |
|--|----------------------------|----------------------------|-----|
309. Y. A. Podpaly, J. E. Rice, P. Beiersdorfer, M. L. Reinke, J. Clementson, H. S. Barnard
Tungsten Measurement on Alcator C-Mod and EBIT for Future Fusion Reactors
 Can. J. Phys. 89, 591-597 (2011)
- | | | | |
|--|----------------------------|----------------------------|-----|
| | W^{21+−22+} | Energy Levels, Wavelengths | Exp |
| | W^{24+−25+} | Energy Levels, Wavelengths | Exp |
| | W^{27+−29+} | Energy Levels, Wavelengths | Exp |
| | W^{65+−71+} | Energy Levels, Wavelengths | Exp |
310. U. I. Safronova, A. S. Safronova, P. Beiersdorfer
Dielectronic Recombination and Satellite Line Spectra of Highly Charged Tungsten Ions
 Can. J. Phys. 89, 581-589 (2011)

	W⁶²⁺	Energy Levels, Wavelengths	Th
	W⁶³⁺	Energy Levels, Wavelengths	Th
	W⁷¹⁺	Energy Levels, Wavelengths	Th
311.	J. Clementson, P. Beiersdorfer, G. V. Brown, M. F. Gu, H. Lundberg, Y. Podpaly, E. Träbert Tungsten Spectroscopy at the Livermore Electron Beam Ion Trap Facility Can. J. Phys. 89, 571-580 (2011)		
	W⁶⁴⁺⁻⁷¹⁺	Energy Levels, Wavelengths	Exp
	W⁶⁶⁺⁻⁷¹⁺	Energy Levels, Wavelengths	Exp
312.	A. Kramida Recent Progress in Spectroscopy of Tungsten Can. J. Phys. 89, 551-570 (2011)		
	W¹³⁺	Energy Levels, Wavelengths	Exp
	W²⁸⁺	Energy Levels, Wavelengths	Exp
	W⁴⁰⁺⁻⁷¹⁺	Energy Levels, Wavelengths	Exp
313.	J. A. Santana, Y. Ishikawa Relativistic R-Matrix Close-Coupling Method Based on the Effective Many-Body Hamiltonian: Electron-Impact Excitation of the 3s² ¹S₀-3s3p ¹P₁ Electric Dipole-Allowed Transition of the Ar⁶⁺ Ion Can. J. Phys. 89, 457-463 (2011)		
	Ar⁵⁺	Energy Levels, Wavelengths	Th
	Ar⁶⁺	Energy Levels, Wavelengths	Th
314.	E. Träbert, Y. Ishikawa, J. A. Santana, G. Del Zanna The 3s²3p3d ³F^o Term in the Si-like Spectrum of Fe (Fe XIII) Can. J. Phys. 89, 403-412 (2011)		
	Fe¹²⁺	Energy Levels, Wavelengths	E/T
315.	K. Pachucki, V. A. Yerokhin Fine Structure of Helium and Light Helium-like Ions Can. J. Phys. 89, 95-101 (2011)		
	He Z= 2-10	Energy Levels, Wavelengths	Th
316.	F. Ferro, A. Artemyev, A. Surzhykov, Th. Stöhlker Hyperfine Interaction Effects on the (1s2p)³P₁-(1s2s)¹S₀ Energy Splitting in He-like Ions for Parity Nonconservation Studies Can. J. Phys. 89, 73-77 (2011)		
	He Z= 3-17	Energy Levels, Wavelengths	Th
	He Z= 21-25	Energy Levels, Wavelengths	Th
	He Z= 29-35	Energy Levels, Wavelengths	Th
	Li⁺	Energy Levels, Wavelengths	Th
	Be²⁺	Energy Levels, Wavelengths	Th
	B³⁺	Energy Levels, Wavelengths	Th
	C⁴⁺	Energy Levels, Wavelengths	Th
	N⁵⁺	Energy Levels, Wavelengths	Th
	O⁶⁺	Energy Levels, Wavelengths	Th
	Ne⁷⁺	Energy Levels, Wavelengths	Th
	Na⁹⁺	Energy Levels, Wavelengths	Th
	Mg¹⁰⁺	Energy Levels, Wavelengths	Th
	Al¹¹⁺	Energy Levels, Wavelengths	Th
	Si¹²⁺	Energy Levels, Wavelengths	Th
	P¹³⁺	Energy Levels, Wavelengths	Th

S¹⁴⁺	Energy Levels, Wavelengths	Th
Cl¹⁵⁺	Energy Levels, Wavelengths	Th
K¹⁷⁺	Energy Levels, Wavelengths	Th
Sc¹⁹⁺	Energy Levels, Wavelengths	Th
Ti²⁰⁺	Energy Levels, Wavelengths	Th
V²¹⁺	Energy Levels, Wavelengths	Th
Cr²²⁺	Energy Levels, Wavelengths	Th
Mn²³⁺	Energy Levels, Wavelengths	Th
Co²⁵⁺	Energy Levels, Wavelengths	Th
Cu²⁷⁺	Energy Levels, Wavelengths	Th
Zn²⁸⁺	Energy Levels, Wavelengths	Th
Ga²⁹⁺	Energy Levels, Wavelengths	Th
Ge³⁰⁺	Energy Levels, Wavelengths	Th
As³¹⁺	Energy Levels, Wavelengths	Th
Se³²⁺	Energy Levels, Wavelengths	Th
Br³³⁺	Energy Levels, Wavelengths	Th
317. C. E. Simien, S. M. Brewer, J. N. Tan, J. D. Gillaspay, C. J. Sansonetti Progress at NIST in Measuring the D-Lines of Li Isotopes Using an Optical Frequency Synthesizer Can. J. Phys. 89, 59-62 (2011)		
Li	Energy Levels, Wavelengths	Exp
318. V. A. Shubert, S. T. Pratt Photoelectron Imaging of Autoionizing States of Xenon: Effect of External Electric Fields Phys. Rev. A 84, 053413 (2011)		
Xe	Energy Levels, Wavelengths	Exp
319. M. J. May, S. B. Hansen, J. Scofield, M. Schneider, K. Wong, P. Beiersdorfer Gold Charge State Distributions in Highly Ionized, Low-Density Beam Plasmas Phys. Rev. E 84, 046402 (2011)		
Au^{45+–58+}	Energy Levels, Wavelengths	Exp
320. J.-J. Wan, C.-Z. Dong The Effects of Quantum Interference Between Direct and Resonant Photorecombination of H-like Ar¹⁷⁺ Ions Phys. Scr. 84, 045301 (2011)		
Ar¹⁶⁺	Energy Levels, Wavelengths	Th
321. B. Doughty, L. H. Haber, S. R. Leone Pump-Probe Photoelectron Velocity-Map Imaging of Autoionizing Singly Excited 4s¹4p⁶np¹ (n=7,8) and Doubly Excited 4s²4p⁴5s¹6p¹ Resonances in Atomic Krypton Phys. Rev. A 84, 043433 (2011)		
Kr	Energy Levels, Wavelengths	Exp
322. H. Tanuma, H. Ohashi, N. Yamamoto, D. Kato, I. Murakami, S. Fujioka, H. Nishimura, K. Nishihara Charge-Exchange EUV Spectroscopy in Collisions of Xe^{q+} (q=7–9) with Rare Gases Phys. Rev. A 84, 059901 (2011)		
Xe^{6+–8+}	Energy Levels, Wavelengths	Exp
323. Y.-H. Lien, K.-J. Lo, H.-C. Chen, J.-R. Chen, J.-Y. Tian, J.-T. Shy, Y.-W. Liu Absolute Frequencies of the ^{6,7}Li 2S ²S_{1/2} → 3S ²S_{1/2} Transitions Phys. Rev. A 84, 042511 (2011)		

- | | | |
|--|----------------------------|-----|
| Li | Energy Levels, Wavelengths | Exp |
| 324. F. Hu, C.-K. Wang, J.-M. Yang, G. Jiang, L.-H. Hao | | |
| Multiconfiguration Dirac-Fock Calculations of Transition Probabilities of Some Tungsten Ions | | |
| Phys. Scr. 84, 015302 (2011) | | |
| W ²⁷⁺ | Energy Levels, Wavelengths | Th |
| W ⁴³⁺ | Energy Levels, Wavelengths | Th |
| W ⁴⁴⁺ | Energy Levels, Wavelengths | Th |
| W ⁴⁵⁺ | Energy Levels, Wavelengths | Th |
| W ⁶¹⁺ | Energy Levels, Wavelengths | Th |
| W ⁶²⁺ | Energy Levels, Wavelengths | Th |
| W ⁶³⁺ | Energy Levels, Wavelengths | Th |
| W ⁶⁹⁺ | Energy Levels, Wavelengths | Th |
| W ⁷⁰⁺ | Energy Levels, Wavelengths | Th |
| W ⁷¹⁺ | Energy Levels, Wavelengths | Th |
| 325. A. M. Covington, A. Aguilar, I. R. Covington, G. Hinojosa, C. A. Shirley, R. A. Phaneuf, I. Álvarez, C. Cisneros, I. Dominguez-Lopez, M. M. Sant'Anna, A. S. Schlachter, C. P. Ballance, B. M. McLaughlin | | |
| Valence-Shell Photoionization of Chlorinelike Ar⁺ Ions | | |
| Phys. Rev. A 84, 013413 (2011) | | |
| Ar ⁺ | Energy Levels, Wavelengths | Exp |
| 326. M. H. Chen, K. T. Cheng | | |
| Relativistic Configuration-Interaction Calculations of the n=3-3 Transition Energies in Highly Charged Tungsten Ions | | |
| Phys. Rev. A 84, 012513 (2011) | | |
| W ⁵⁶⁺ | Energy Levels, Wavelengths | Th |
| W ⁶⁰⁺ | Energy Levels, Wavelengths | Th |
| W ^{61+–64+} | Energy Levels, Wavelengths | Th |
| 327. U. I. Safronova, A. S. Safronova | | |
| Correlation and Relativistic Effects for the 4f-nl and 5p-nl Multipole Transitions in Er-like Tungsten | | |
| Phys. Rev. A 84, 012511 (2011) | | |
| W ⁶⁺ | Energy Levels, Wavelengths | Th |
| 328. N. Shiga, W. M. Itano, J. J. Bollinger | | |
| Diamagnetic Correction to the ⁹Be⁺ Ground-State Hyperfine Constant | | |
| Phys. Rev. A 84, 012510 (2011) | | |
| Be ⁺ | Energy Levels, Wavelengths | Exp |
| 329. Z.-S. Jiang, S. Kar, Y. K. Ho | | |
| Polarizabilities of Two-Electron Positive Ions with Screened Coulomb Potentials | | |
| Phys. Rev. A 84, 012504 (2011) | | |
| He Z= 3-8 | Energy Levels, Wavelengths | Th |
| 330. P. Bogdanovich, O. Rancova, A. Štikonas | | |
| Quasirelativistic Treatment of Spectral Characteristics of W³⁷⁺ | | |
| Phys. Scr. 83, 065302 (2011) | | |
| W ³⁷⁺ | Energy Levels, Wavelengths | Th |

331. T. Carette, M. R. Godefroid
Theoretical Study of the C^- $^4S_{3/2}$ and $^2D_{3/2,5/2}$ Bound States and C Ground Configuration: Fine and Hyperfine Structures, Isotope Shifts, and Transition Probabilities
 Phys. Rev. A 83, 062505 (2011)
- | | | |
|------------|----------------------------|----|
| $^{11}C^-$ | Energy Levels, Wavelengths | Th |
| $^{13}C^-$ | Energy Levels, Wavelengths | Th |
| C^- | Energy Levels, Wavelengths | Th |
| C | Energy Levels, Wavelengths | Th |
332. G. P. Gupta, A. Z. Msezane
Fine-Structure Energy Levels, Oscillator Strengths and Lifetimes in Cu XVI
 Phys. Scr. 83, 055301 (2011)
- | | | |
|------------|----------------------------|----|
| Cu^{15+} | Energy Levels, Wavelengths | Th |
|------------|----------------------------|----|
333. J. Jose, G. B. Pradhan, V. Radojević, S. T. Manson, P. C. Deshmukh
Valence Photodetachment of Li^- and Na^- Using Relativistic Many-Body Techniques
 Phys. Rev. A 83, 053419 (2011)
- | | | |
|--------|----------------------------|----|
| Li^- | Energy Levels, Wavelengths | Th |
| Na^- | Energy Levels, Wavelengths | Th |
334. B. J. Wundt, U. D. Jentschura
Self-Energy Correction to the Hyperfine Splitting for Excited States
 Phys. Rev. A 83, 052501 (2011)
- | | | |
|-------------------|----------------------------|----|
| H Z= 1-100 | Energy Levels, Wavelengths | Th |
| H | Energy Levels, Wavelengths | Th |
335. M. F. Gharaibeh, A. Aguilar, A. M. Covington, E. D. Emmons, S. W. J. Scully, R. A. Phaneuf, A. Müller, J. D. Bozek, A. L. D. Kilcoyne, A. S. Schlachter, I. Álvarez, C. Cisneros, G. Hinojosa
Photoionization Measurements for the Iron Isonuclear Sequence Fe^{3+} , Fe^{5+} , and Fe^{7+}
 Phys. Rev. A 83, 043412 (2011)
- | | | |
|-----------|----------------------------|-----|
| Fe^{3+} | Energy Levels, Wavelengths | Exp |
| Fe^{5+} | Energy Levels, Wavelengths | Exp |
336. M. S. Pindzola, S. D. Loch, F. Robicheaux
Dielectronic Recombination in C^{3+} Above and Below the Ionization Threshold
 Phys. Rev. A 83, 042705 (2011)
- | | | |
|----------|----------------------------|----|
| C^{3+} | Energy Levels, Wavelengths | Th |
|----------|----------------------------|----|
337. A. Joiner, R. H. Mohr, J. N. Yukich
High-Resolution Photodetachment Spectroscopy from the Lowest Threshold of O^-
 Phys. Rev. A 83, 035401 (2011)
- | | | |
|-------|----------------------------|-----|
| O^- | Energy Levels, Wavelengths | Exp |
|-------|----------------------------|-----|
338. J. S. Sims, S. A. Hagstrom
Hylleraas-Configuration-Interaction Study of the 1S Ground State of Neutral Beryllium
 Phys. Rev. A 83, 032518 (2011)
- | | | |
|-----------|----------------------------|----|
| Be | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
339. Yu. Ralchenko, I. N. Draganić, D. Osin, J. D. Gillaspay, J. Reader
Spectroscopy of Diagnostically Important Magnetic-Dipole Lines in Highly Charged $3d^n$ Ions of Tungsten
 Phys. Rev. A 83, 032517 (2011)

- | | | | |
|------|---|----------------------------|-----|
| | W⁴⁷⁺⁻⁵⁵⁺ | Energy Levels, Wavelengths | Exp |
| 340. | G. Gaigalas, Z. Rudzikas, P. Rynkun, A. Alkauskas
Dependence of the Probabilities of the Electric-Multipole Electron Transitions in W²⁴⁺ on Multipolarity
Phys. Rev. A 83, 032509 (2011) | | |
| | W²⁴⁺ | Energy Levels, Wavelengths | Th |
| 341. | L. Zhang, G. Jiang, L.-H. Hao, B.-L. Deng
Relativistic Configuration Interaction Calculations on Kα X-ray Satellites of Krypton
Phys. Scr. 83, 025302 (2011) | | |
| | Kr²⁶⁺⁻³⁴⁺ | Energy Levels, Wavelengths | Th |
| 342. | Y. Komminos, Th. Mercouris, C. A. Nicolaides
Regular Series of Doubly Excited States Inside Two-Electron Continua: Application to 2s²-Hole States in Neon Above the Ne²⁺ 1s²2s²2p⁴ and 1s²2s2p⁵ Thresholds
Phys. Rev. A 83, 022501 (2011) | | |
| | Ne | Energy Levels, Wavelengths | Th |
| 343. | K. M. Aggarwal, T. Kato, F. P. Keenan, I. Murakami
Energy Levels, Radiative Rates and Electron Impact Excitation Rates for Transitions in He-like Li II, Be III, B IV and C V
Phys. Scr. 83, 015302 (2011) | | |
| | He Z= 3-6 | Energy Levels, Wavelengths | Th |
| 344. | D.-H. Kwon, D. W. Savin
Fe¹⁵⁺ Dielectronic Recombination and the Effects of Configuration Interaction Between Resonances with Different Captured Electron Principal Quantum Numbers
Phys. Rev. A 83, 012701 (2011) | | |
| | Fe¹⁴⁺ | Energy Levels, Wavelengths | Th |
| 345. | W. Nörtershäuser, R. Sánchez, G. Ewald, A. Dax, J. Behr, P. Bricault, B. A. Bushaw, J. Dilling, M. Domsbky, G. W. F. Drake, S. Götte, H.-J. Kluge, Th. Kühl, J. Lassen, C. D. P. Levy, K. Pachucki, M. Pearson, M. Puchalski, A. Wojtaszek, Z.-C. Yan, C. Zimmermann
Isotope-Shift Measurements of Stable and Short-Lived Lithium Isotopes for Nuclear-Charge-Radii Determination
Phys. Rev. A 83, 012516 (2011) | | |
| | Li | Energy Levels, Wavelengths | E/T |
| 346. | P. Beiersdorfer, M. Obst, U. I. Safronova
Radiative Decay Probabilities of the (2s²2p⁵_{1/2}3s_{1/2})_{J=0} Level in Neonlike Ions
Phys. Rev. A 83, 012514 (2011) | | |
| | Ne Z= 13-100 | Energy Levels, Wavelengths | Th |
| 347. | W. Williams, Z.-T. Lu, K. Rudinger, C.-Y. Xu, R. Yokochi, P. Mueller
Spectroscopic Study of the Cycling Transition 4s[3/2]₂-4p[5/2]₃ at 811.8 nm in ³⁹Ar: Hyperfine Structure and Isotope Shift
Phys. Rev. A 83, 012512 (2011) | | |
| | Ar | Energy Levels, Wavelengths | Exp |
| 348. | L.-H. Hao, G. Jiang
Energy Levels, Transition Rates, and Line Strengths of B-like Ions
Phys. Rev. A 83, 012511 (2011) | | |

- | | | |
|-------------------------|----------------------------|----|
| Al⁸⁺ | Energy Levels, Wavelengths | Th |
| Mn²⁰⁺ | Energy Levels, Wavelengths | Th |
| Fe²¹⁺ | Energy Levels, Wavelengths | Th |
| Co²²⁺ | Energy Levels, Wavelengths | Th |
| Ni²³⁺ | Energy Levels, Wavelengths | Th |
| Cu²⁴⁺ | Energy Levels, Wavelengths | Th |
| Zn²⁵⁺ | Energy Levels, Wavelengths | Th |
| Mo³⁷⁺ | Energy Levels, Wavelengths | Th |
| Au⁷⁴⁺ | Energy Levels, Wavelengths | Th |
349. V. A. Yerokhin
Nuclear-Size Correction to the Lamb Shift of One-Electron Atoms
 Phys. Rev. A 83, 012507 (2011)
- | | | |
|-------------------|----------------------------|----|
| H Z= 1-100 | Energy Levels, Wavelengths | Th |
|-------------------|----------------------------|----|
350. J. Sapirstein, K. T. Cheng
S-Matrix Calculations of Energy Levels of the Lithium Isoelectronic Sequence
 Phys. Rev. A 83, 012504 (2011)
- | | | |
|---------------------|----------------------------|----|
| Li Z= 10-100 | Energy Levels, Wavelengths | Th |
|---------------------|----------------------------|----|
351. H. Ohashi, J. Yatsurugi, H. A. Sakaue, N. Nakamura
High Resolution Extreme Ultraviolet Spectrometer for an Electron Beam Ion Trap
 Rev. Sci. Instrum. 82, 083103 (2011)
- | | | |
|-----------------------------|----------------------------|-----|
| Xe²⁴⁺ | Energy Levels, Wavelengths | Exp |
| Xe³⁸⁺⁻⁴³⁺ | Energy Levels, Wavelengths | Exp |
| W⁴¹⁺⁻⁴⁵⁺ | Energy Levels, Wavelengths | Exp |
352. I. Sakho
High Lying Energy Positions of Doubly (2pns) ^{1,3}P^o and (2pnd) ^{1,3}P^o Excited States of the Beryllium Atom
 Radiat. Phys. Chem. 80, 1295-1299 (2011)
- | | | |
|-----------|----------------------------|----|
| Be | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
353. C.-C. Sang, Y. F. Jiao, Y. Sun, B. C. Gou
Energies, Auger and Radiative Probabilities of the Doubly-Excited 1s²3l3l' States for Be-like Neon
 Eur. Phys. J. D 64, 203-207 (2011)
- | | | |
|------------------------|----------------------------|----|
| Ne⁶⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
354. L. Sharma, R. Srivastava, A. D. Stauffer
Excitation of the 5p⁵7p Levels of Xenon by Electron Impact
 Eur. Phys. J. D 62, 399-403 (2011)
- | | | |
|-----------|----------------------------|----|
| Xe | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
355. I. Sakho
Screening Constant by Unit Nuclear Charge Calculations of ^{1,3}S^e, ^{1,3}P^o and ^{1,3}D^e Inter-shell Rydberg States of the Helium-like Ions Below the N = 2 Hydrogenic Thresholds
 Eur. Phys. J. D 61, 267-283 (2011)
- | | | |
|-------------------|----------------------------|----|
| He Z= 2-28 | Energy Levels, Wavelengths | Th |
|-------------------|----------------------------|----|
356. F. Hu, G. Jiang, J. M. Yang, C. K. Wang, X. F. Zhao, L. H. Hao
Effects of Valence-Valence, Core-Valence and Core-Core Correlations on the Fine-Structure Energy Levels in Zn-like Ions
 Eur. Phys. J. D 61, 15-20 (2011)

- | | | |
|--------------------------|----------------------------|----|
| Yb ⁴⁰⁺ | Energy Levels, Wavelengths | Th |
| W ⁴⁴⁺ | Energy Levels, Wavelengths | Th |
| Os ⁴⁶⁺ | Energy Levels, Wavelengths | Th |
| Au ⁴⁹⁺ | Energy Levels, Wavelengths | Th |
| Pb ⁵²⁺ | Energy Levels, Wavelengths | Th |
| Bi ⁵³⁺ | Energy Levels, Wavelengths | Th |
| Th ⁶⁰⁺ | Energy Levels, Wavelengths | Th |
| U ⁶²⁺ | Energy Levels, Wavelengths | Th |
357. U. I. Safronova, P. G. Wilcox, A. S. Safronova
Relativistic Calculations of Dielectronic Recombination and Satellite Lines of an Ar-like Ni Ion
 J. Phys. B 44, 225002 (2011)
- | | | |
|-------------------------|----------------------------|----|
| Ni ⁹⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
358. F. Güzelçimen, Gö. Başar, I. K. Öztürk, S. Kröger, R. Ferber, A. Jarmola, M. Tamanis, Gü. Başar
Hyperfine Structure of the 3d³4s4p ⁶G Multiplet of Atomic Vanadium
 J. Phys. B 44, 215001 (2011)
- | | | |
|----------|----------------------------|-----|
| V | Energy Levels, Wavelengths | Exp |
|----------|----------------------------|-----|
359. A. Er, I. K. Öztürk, G. Başar, S. Kröger, A. Jarmola, R. Ferber, M. Tamanis
Hyperfine Structure Study of Atomic Niobium with Enhanced Sensitivity of Fourier Transform Spectroscopy
 J. Phys. B 44, 205001 (2011)
- | | | |
|-----------|----------------------------|-----|
| Nb | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
360. V. D. Ovsiannikov, I. L. Glukhov, E. A. Nekipelov
Rates of Blackbody Radiation-Induced Transitions from Rydberg States of Alkali Atoms
 J. Phys. B 44, 195010 (2011)
- | | | |
|-----------|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
| Na | Energy Levels, Wavelengths | Th |
| K | Energy Levels, Wavelengths | Th |
| Rb | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
361. J. Jose, G. B. Pradhan, V. Radojević, S. T. Manson, P. C. Deshmukh
Electron Correlation Effects Near the Photoionization Threshold: The Ar Isoelectronic Sequence
 J. Phys. B 44, 195008 (2011)
- | | | |
|--------------------------|----------------------------|----|
| Ar Z= 17-19 | Energy Levels, Wavelengths | Th |
| Sc ³⁺ | Energy Levels, Wavelengths | Th |
| Mn ⁷⁺ | Energy Levels, Wavelengths | Th |
| Cu ¹¹⁺ | Energy Levels, Wavelengths | Th |
| Kr ¹⁸⁺ | Energy Levels, Wavelengths | Th |
| Mo ²⁴⁺ | Energy Levels, Wavelengths | Th |
| Cd ³⁰⁺ | Energy Levels, Wavelengths | Th |
362. P. Quinet
Dirac-Fock Calculations of Forbidden Transitions within the 3p^k and 3d^k Ground Configurations of Highly Charged Tungsten Ions (W⁴⁷⁺-W⁶¹⁺)
 J. Phys. B 44, 195007 (2011)
- | | | |
|-----------------------------|----------------------------|----|
| W ⁴⁷⁺⁻⁶¹⁺ | Energy Levels, Wavelengths | Th |
|-----------------------------|----------------------------|----|

363. M. F. Gharaibeh, J. M. Bizau, D. Cubaynes, S. Guilbaud, N. El Hassan, M. M. Al Shorman, C. Miron, C. Nicolas, E. Robert, C. Blancard, B. M. McLaughlin
K-Shell Photoionization of Singly Ionized Atomic Nitrogen: Experiment and Theory
 J. Phys. B 44, 175208 (2011)

N^+ Energy Levels, Wavelengths E/T

364. C. Suzuki, C. S. Harte, D. Kilbane, T. Kato, H. A. Sakaue, I. Murakami, D. Kato, K. Sato, N. Tamura, S. Sudo, M. Goto, R. D'Arcy, E. Sokell, G. O'Sullivan
Interpretation of Spectral Emission in the 20 nm Region from Tungsten Ions Observed in Fusion Device Plasmas
 J. Phys. B 44, 175004 (2011)

W^{7+-27+} Energy Levels, Wavelengths E/T

365. M. Das, R. K. Chaudhuri, S. Chattopadhyay, U. S. Mahapatra, P. K. Mukherjee
Application of Relativistic Coupled Cluster Linear Response Theory to Helium-like Ions Embedded in Plasma Environment
 J. Phys. B 44, 165701 (2011)

C^{4+} Energy Levels, Wavelengths Th
 Al^{11+} Energy Levels, Wavelengths Th
 Ar^{16+} Energy Levels, Wavelengths Th

366. J. Rausch, A. Becker, K. Spruck, J. Hellhund, A. Borovik Jr., K. Huber, S. Schippers, A. Müller
Electron-Impact Single and Double Ionization of W^{17+}
 J. Phys. B 44, 165202 (2011)

$W^{17+-18+}$ Energy Levels, Wavelengths E/T

367. D. Kilbane
Transition Wavelengths and Unresolved Transition Array Statistics of Ions with $Z = 72-89$
 J. Phys. B 44, 165006 (2011)

Rb $Z= 72-89$ Energy Levels, Wavelengths Th
Rh $Z= 72-89$ Energy Levels, Wavelengths Th
Ru $Z= 72-89$ Energy Levels, Wavelengths Th
Tc $Z= 72-89$ Energy Levels, Wavelengths Th
Mo $Z= 72-89$ Energy Levels, Wavelengths Th
Nb $Z= 72-89$ Energy Levels, Wavelengths Th
Zr $Z= 72-89$ Energy Levels, Wavelengths Th
Y $Z= 72-89$ Energy Levels, Wavelengths Th
Sr $Z= 72-89$ Energy Levels, Wavelengths Th

368. P. Quinet, P. Palmeri, É. Biémont
Spectroscopic Data for Atomic Tungsten Transitions of Interest in Fusion Plasma Research
 J. Phys. B 44, 145005 (2011)

W Energy Levels, Wavelengths Th

369. X.-B. Ding, F. Koike, I. Murakami, D. Kato, H. A. Sakaue, C.-Z. Dong, N. Nakamura, A. Komatsu, J. Sakoda
Ab Initio Multi-Configuration Dirac-Fock Calculation of M1 Visible Transitions Among the Ground State Multiplets of the W^{26+} Ion
 J. Phys. B 44, 145004 (2011)

W^{26+} Energy Levels, Wavelengths Th

370. Z. Felfli, A. Z. Msezane, D. Sokolovski
Elastic Scattering of Slow Electrons from Y, Ru, Pd, Ag and Pt Atoms: Search for Nanocatalysts
 J. Phys. B 44, 135204 (2011)
- | | | |
|-----------------------|----------------------------|----|
| Y⁻ | Energy Levels, Wavelengths | Th |
| Ru⁻ | Energy Levels, Wavelengths | Th |
| Ag⁻ | Energy Levels, Wavelengths | Th |
| Pt⁻ | Energy Levels, Wavelengths | Th |
| Au⁻ | Energy Levels, Wavelengths | Th |
371. S. Civiš, I. Matulková, J. Cihelka, P. Kubelík, K. Kawaguchi, V. E. Chernov
Low-Excited f-, g- and h-States in Au, Ag and Cu Observed by Fourier-Transform Infrared Spectroscopy in the 1000–7500 cm⁻¹ Region
 J. Phys. B 44, 105002 (2011)
- | | | |
|-----------|----------------------------|-----|
| Cu | Energy Levels, Wavelengths | Exp |
| Ag | Energy Levels, Wavelengths | Exp |
| Au | Energy Levels, Wavelengths | Exp |
372. T. Carette, M. R. Godefroid
Ab Initio Calculations of the ³³S 3p⁴ 3P_J and ³³S⁻/^{37,35}Cl 3p⁵ 2P_J Hyperfine Structures
 J. Phys. B 44, 105001 (2011)
- | | | |
|-----------------------------------|----------------------------|----|
| ³³S⁻ | Energy Levels, Wavelengths | Th |
| S⁻ | Energy Levels, Wavelengths | Th |
| S | Energy Levels, Wavelengths | Th |
| Cl | Energy Levels, Wavelengths | Th |
373. B. M. Lagutin, I. D. Petrov, V. L. Sukhorukov, H. Schmoranzner, K.-H. Scharfner, A. Ehresmann
Fourfold Excitations, Intra- and Inter-Shell Correlations in the Auger Decay of Kr 3d-np Resonances
 J. Phys. B 44, 095002 (2011)
- | | | |
|-----------|----------------------------|-----|
| Kr | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
374. N. D. Quart, A. S. Safronova, A. Ya. Faenov, T. A. Pikuz, S. V. Gasilov, F. Calegari, M. Nisoli, S. De Silvestri, S. Stagira, L. Poletto, P. Villoresi
Analysis of the Simultaneous Measurements of Iron K- and L-Shell Radiation from Ultrashort Laser Produced Plasmas
 J. Phys. B 44, 065602 (2011)
- | | | |
|-----------------------------|----------------------------|-----|
| Fe¹⁵⁺⁻¹⁷⁺ | Energy Levels, Wavelengths | E/T |
|-----------------------------|----------------------------|-----|
375. M. Gallardo, M. Raineri, J. Reyna Almandos, É. Biémont
New Energy Levels, Calculated Lifetimes and Transition Probabilities in Xe IX
 J. Phys. B 44, 045001 (2011)
- | | | |
|------------------------|----------------------------|-----|
| Xe⁸⁺ | Energy Levels, Wavelengths | E/T |
|------------------------|----------------------------|-----|
376. U. I. Safronova, A. S. Safronova, P. Beiersdorfer, W. R. Johnson
Excitation Energies, Radiative and Autoionization Rates, Dielectronic Satellite Lines and Dielectronic Recombination Rates for Excited States of Ag-like W from Pd-like W
 J. Phys. B 44, 035005 (2011)
- | | | |
|------------------------|----------------------------|----|
| W²⁷⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
377. R. Karazija, A. Momkauskaitė, L. Remeikaitė-Bakšienė
Formation of a Narrow Group of Intense Lines in the Photoexcitation and Emission Spectra Corresponding to 3s²3p^N-(3s3p^{N+1} + 3s²3p^{N-1}3d) Transitions
 J. Phys. B 44, 035002 (2011)

- | | | |
|--------------------|----------------------------|----|
| Al Z= 18-40 | Energy Levels, Wavelengths | Th |
| Cl Z= 18-40 | Energy Levels, Wavelengths | Th |
| S Z= 18-40 | Energy Levels, Wavelengths | Th |
| P Z= 18-40 | Energy Levels, Wavelengths | Th |
| Si Z= 18-40 | Energy Levels, Wavelengths | Th |
378. I. N. Draganić, Yu. Ralchenko, J. Reader, J. D. Gillaspay, J. N. Tan, J. M. Pomeroy, S. M. Brewer, D. Osin
EUV Spectral Lines of Highly-Charged Hf, Ta and Au Ions Observed with an Electron Beam Ion Trap
 J. Phys. B 44, 179801 (2011)
- | | | |
|-----------------------------|----------------------------|-----|
| Fe Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Ni Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Sr Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Rb Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Kr Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Br Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Se Z= 72-73 | Energy Levels, Wavelengths | E/T |
| As Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Ge Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Ga Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Zn Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Cu Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Ni Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Co Z= 72-73 | Energy Levels, Wavelengths | E/T |
| Au⁴¹⁺⁻⁵³⁺ | Energy Levels, Wavelengths | E/T |
| Au⁴²⁺⁻⁵²⁺ | Energy Levels, Wavelengths | E/T |
379. I. Lontos, C. Corsi, S. Cavalieri, M. Bellini, R. Eramo
Split-Pulse Spectrometer for Absolute XUV Frequency Measurements
 Opt. Lett. 36, 2047-2049 (2011)
- | | | |
|-----------|----------------------------|-----|
| Ar | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
380. G. Nave, C. J. Sansonetti
Wavelengths of the $3d^6(5D)4s\ a^6D - 3d^5(6S)4s4p\ y^6P$ Multiplet of Fe II (UV 8)
 J. Opt. Soc. Am. B 28, 737-745 (2011)
- | | | |
|---------------------------|----------------------------|-----|
| Mg⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Ar⁺ | Energy Levels, Wavelengths | Exp |
| Fe⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Fe⁺ | Energy Levels, Wavelengths | Exp |
| Ge⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
381. M.-H. Hu, Z.-W. Wang, F.-W. Zeng, T. Wang, J. Wang
Energy Levels of $1s^2nd\ (n \leq 9)$ States for Lithium-like Ions
 Chin. Phys. B 20, 083101 (2011)
- | | | |
|--------------------|----------------------------|----|
| Li Z= 11-20 | Energy Levels, Wavelengths | Th |
|--------------------|----------------------------|----|
382. F. Hu, G. Jiang, J.-M. Yang, C.-K. Wang, X.-F. Zhao, H.-P. Zang
Multi-Configuration Dirac-Hartree-Fock (MCDHF) Calculations for Zn-like Sequence from Z = 48 To 54
 Chin. Phys. B 20, 063103 (2011)
- | | | |
|--------------------|----------------------------|----|
| Zn Z= 48-54 | Energy Levels, Wavelengths | Th |
|--------------------|----------------------------|----|
383. J. Söderström, A. Lindblad, A. N. Grum-Grzhimailo, O. Travnikova, C. Nicolas, S. Svensson, C. Miron
Angle-Resolved Electron Spectroscopy of the Resonant Auger Decay in Xenon with meV Energy Resolution
 New J. Phys. 13, 073014 (2011)

- | | | | |
|------|--|----------------------------|-----|
| | Xe⁺ | Energy Levels, Wavelengths | Exp |
| 384. | F. Hu, J.-M. Yang, C.-K. Wang, G. Jiang, X.-F. Zhao, H.-P. Zang
Multiconfiguration Dirac-Fock Results for Forbidden Transitions in the 2p⁴ Configuration
Cent. Eur. J. Phys. 9, 1228-1236 (2011) | | |
| | O Z= 8-42 | Energy Levels, Wavelengths | Th |
| 385. | E. Louzon, A. Feigel, Y. Frank, E. Raicher, M. Klapisch, P. Mandelbaum, I. Levy, G. Hurvitz, Y. Ehrlich, M. Frankel, S. Maman, Z. Henis
X-ray Spectral Measurements and Collisional Radiative Modeling of Laser Produced Iron Plasma
High En. Dens. Phys. 7, 124-129 (2011) | | |
| | Fe^{19+–23+} | Energy Levels, Wavelengths | Exp |
| | Fe²³⁺ | Energy Levels, Wavelengths | Exp |
| 386. | H. G. Wei, J. R. Shi, G. Zhao, Z. T. Liang
K-Shell Energy Levels and Radiative Rates for Transitions in Si XI
Astron. Astrophys. 522, A103 (2010) | | |
| | Si¹⁰⁺ | Energy Levels, Wavelengths | Th |
| 387. | F. Castelli, R. L. Kurucz
New Fe II Energy Levels from Stellar Spectra
Astron. Astrophys. 520, A57 (2010) | | |
| | Fe⁺ | Energy Levels, Wavelengths | E/T |
| 388. | G. Y. Liang, N. R. Badnell
R-Matrix Electron-Impact Excitation Data for the Ne-like Iso-Electronic Sequence
Astron. Astrophys. 518, A64 (2010) | | |
| | Ne Z= 11-36 | Energy Levels, Wavelengths | Th |
| 389. | G. Y. Liang, G. Zhao
Soft X-ray Emission Lines of Fe VII–Fe XVI in Stellar Coronae in the Range 49–106 Å
Mon. Not. R. Astron. Soc. 405, 1987-2000 (2010) | | |
| | Mg⁶⁺ | Energy Levels, Wavelengths | Exp |
| | Si^{6+–8+} | Energy Levels, Wavelengths | Exp |
| | Fe^{8+–15+} | Energy Levels, Wavelengths | Exp |
| | Fe^{9+–14+} | Energy Levels, Wavelengths | Exp |
| 390. | M. Hellgren, U. von Barth
Correlation Energy Functional and Potential from Time-Dependent Exact-Exchange Theory
J. Chem. Phys. 132, 044101 (2010) | | |
| | He | Energy Levels, Wavelengths | Th |
| | Be | Energy Levels, Wavelengths | Th |
| | Ne | Energy Levels, Wavelengths | Th |
| | Mg | Energy Levels, Wavelengths | Th |
| | Ar | Energy Levels, Wavelengths | Th |
| 391. | Z.-W. Chang, J.-G. Li, C.-Z. Dong
Ionization Potentials, Electron Affinities, Resonance Excitation Energies, Oscillator Strengths, and Ionic Radii of Element Uus (Z = 117) and Astatine
J. Phys. Chem. A 114, 13388-13394 (2010) | | |

Cl⁻	Energy Levels, Wavelengths	E/T
Cl	Energy Levels, Wavelengths	E/T
Cl⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
Br⁻	Energy Levels, Wavelengths	E/T
Br	Energy Levels, Wavelengths	E/T
Br⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
I⁻	Energy Levels, Wavelengths	E/T
I	Energy Levels, Wavelengths	E/T
I⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
At⁻	Energy Levels, Wavelengths	E/T
At	Energy Levels, Wavelengths	E/T
At⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
Uus	Energy Levels, Wavelengths	E/T
Uus⁰⁺⁻⁴⁺	Energy Levels, Wavelengths	E/T
392. Z. H. Yang, S. B. Du, H. W. Chang, Y. P. Zhang, B. L. Zhang, Q. M. Xu, D. Y. Yu, X. H. Cai Iron XII to XXII Spectra Measurements Between 250 and 400 Å J. Quant. Spectrosc. Radiat. Transfer 111, 2007-2011 (2010)		
Fe¹¹⁺⁻²¹⁺	Energy Levels, Wavelengths	Exp
393. A. I. Bondarev, Yu. S. Kozhedub, N. S. Oreshkina Finite Nuclear Size Correction to Vacuum Polarization in Hydrogen-like Ions Opt. Spectrosc. 109, 823-828 (2010)		
H Z= 1-100	Energy Levels, Wavelengths	Th
394. G. P. Anisimova, O. A. Dolmatova, E. A. Efremova Specific Features of Zeeman Structure of Configurations 2p⁵5g of Ne I and 3p⁵5g of Ar I Opt. Spectrosc. 109, 483-485 (2010)		
Ne	Energy Levels, Wavelengths	Th
Ar	Energy Levels, Wavelengths	Th
395. A. A. Buchachenko State-Interacting Spin-Orbit Configuration Interaction Method for J-Resolved Anisotropic Static Dipole Polarizabilities: Application to Al, Ga, In, and Tl Atoms Russ. J. Phys. Chem. A 84, 2325-2333 (2010)		
Al	Energy Levels, Wavelengths	Th
Ga	Energy Levels, Wavelengths	Th
In	Energy Levels, Wavelengths	Th
Tl	Energy Levels, Wavelengths	Th
396. K. M. Aggarwal, F. P. Keenan Energy Levels, Radiative Rates and Electron Impact Excitation Rates for Transitions in Si XII, Si XIII and Si XIV Phys. Scr. 82, 065302 (2010)		
Si¹¹⁺⁻¹³⁺	Energy Levels, Wavelengths	Th
397. P. Vingerhoets, K. T. Flanagan, M. Avgoulea, J. Billowes, M. L. Bissell, K. Blaum, B. A. Brown, B. Cheal, M. De Rydt, D. H. Forest, Ch. Geppert, M. Honma, M. Kowalska, J. Krämer, A. Krieger, E. Mané, R. Neugart, G. Neyens, W. Nörtershäuser, T. Otsuka, M. Schug, H. H. Stroke, G. Tungate, D. T. Yordanov Nuclear Spins, Magnetic Moments, and Quadrupole Moments of Cu Isotopes from N=28 to N=46: Probes for Core Polarization Effects Phys. Rev. C 82, 064311 (2010)		
Cu	Energy Levels, Wavelengths	Exp

398. C. Gao, J.-L. Zeng
Validity of Analytical Formulas for Autoionization and Dielectronic Capture Rates Used in Collisional-Radiative Models
 Phys. Rev. A 82, 062515 (2010)
- | | | |
|-------------------------|----------------------------|----|
| Au⁵⁰⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
399. L. Natarajan, A. Natarajan, R. Kadrekar
Relativistic Fine-Structure Oscillator Strengths for Li-like Ions
 Phys. Rev. A 82, 062514 (2010)
- | | | |
|--------------------|----------------------------|----|
| Li Z= 14-54 | Energy Levels, Wavelengths | Th |
|--------------------|----------------------------|----|
400. V. A. Dzuba, V. V. Flambaum, K. Beloy, A. Derevianko
Hyperfine-Mediated Static Polarizabilities of Monovalent Atoms and Ions
 Phys. Rev. A 82, 062513 (2010)
- | | | |
|-----------------------|----------------------------|----|
| Al | Energy Levels, Wavelengths | Th |
| Rb | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
| Yb⁺ | Energy Levels, Wavelengths | Th |
| Hg⁺ | Energy Levels, Wavelengths | Th |
| Fr | Energy Levels, Wavelengths | Th |
401. M. Puchalski, D. Kędziera, K. Pachucki
Ionization Potential for Excited S States of the Lithium Atom
 Phys. Rev. A 82, 062509 (2010)
- | | | |
|-----------|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
402. C. Thierfelder, P. Schwerdtfeger
Quantum Electrodynamical Corrections for the Valence Shell in Heavy Many-Electron Atoms
 Phys. Rev. A 82, 062503 (2010)
- | | | |
|-------------------------|----------------------------|----|
| | Energy Levels, Wavelengths | Th |
| He | Energy Levels, Wavelengths | Th |
| Li | Energy Levels, Wavelengths | Th |
| Be | Energy Levels, Wavelengths | Th |
| B | Energy Levels, Wavelengths | Th |
| Ne | Energy Levels, Wavelengths | Th |
| Ne⁷⁺ | Energy Levels, Wavelengths | Th |
| Na | Energy Levels, Wavelengths | Th |
| Mg | Energy Levels, Wavelengths | Th |
| Al | Energy Levels, Wavelengths | Th |
| Ar | Energy Levels, Wavelengths | Th |
| K | Energy Levels, Wavelengths | Th |
| Ca | Energy Levels, Wavelengths | Th |
| Ca⁹⁺ | Energy Levels, Wavelengths | Th |
| Ca¹⁷⁺ | Energy Levels, Wavelengths | Th |
| Cu | Energy Levels, Wavelengths | Th |
| Zn | Energy Levels, Wavelengths | Th |
| Zn¹⁹⁺ | Energy Levels, Wavelengths | Th |
| Zn²⁷⁺ | Energy Levels, Wavelengths | Th |
| Ga | Energy Levels, Wavelengths | Th |
| Kr | Energy Levels, Wavelengths | Th |
| Rb | Energy Levels, Wavelengths | Th |
| Sr | Energy Levels, Wavelengths | Th |
| Zr | Energy Levels, Wavelengths | Th |
| Zr¹¹⁺ | Energy Levels, Wavelengths | Th |

Zr ²⁹⁺	Energy Levels, Wavelengths	Th
Zr ³⁷⁺	Energy Levels, Wavelengths	Th
Ag	Energy Levels, Wavelengths	Th
Cd	Energy Levels, Wavelengths	Th
In	Energy Levels, Wavelengths	Th
Sn	Energy Levels, Wavelengths	Th
Sn ²¹⁺	Energy Levels, Wavelengths	Th
Sn ³⁹⁺	Energy Levels, Wavelengths	Th
Sn ⁴⁷⁺	Energy Levels, Wavelengths	Th
Xe	Energy Levels, Wavelengths	Th
Cs	Energy Levels, Wavelengths	Th
Ba	Energy Levels, Wavelengths	Th
Nd	Energy Levels, Wavelengths	Th
Nd ³¹⁺	Energy Levels, Wavelengths	Th
Nd ⁵⁷⁺	Energy Levels, Wavelengths	Th
Yb	Energy Levels, Wavelengths	Th
Yb ⁴¹⁺	Energy Levels, Wavelengths	Th
Yb ⁶⁷⁺	Energy Levels, Wavelengths	Th
Au	Energy Levels, Wavelengths	Th
Hg	Energy Levels, Wavelengths	Th
Hg ⁶⁹⁺	Energy Levels, Wavelengths	Th
Hg ⁷⁷⁺	Energy Levels, Wavelengths	Th
Tl	Energy Levels, Wavelengths	Th
Rn	Energy Levels, Wavelengths	Th
Fr	Energy Levels, Wavelengths	Th
Ra	Energy Levels, Wavelengths	Th
Th	Energy Levels, Wavelengths	Th
Th ⁶¹⁺	Energy Levels, Wavelengths	Th
Th ⁷⁹⁺	Energy Levels, Wavelengths	Th
Th ⁸⁷⁺	Energy Levels, Wavelengths	Th
Rg	Energy Levels, Wavelengths	Th
Uuo	Energy Levels, Wavelengths	Th

403. L. Zamick

Relation Between a Three-Parameter Formula for Isotope Shifts and Staggering Parameters

Phys. Rev. C 82, 057304 (2010)

Ar	Energy Levels, Wavelengths	E/T
K	Energy Levels, Wavelengths	E/T
Ca	Energy Levels, Wavelengths	E/T
Ti	Energy Levels, Wavelengths	E/T

404. A. Gumberidze, S. Fritzsche, F. Bosch, D. C. Ionescu, A. Krämer, C. Kozhuharov, Z. Stachura, A. Surzhykov, A. Warczak, Th. Stöhlker

Shell- and Subshell-Resolved Projectile Excitation of Hydrogenlike Au⁷⁸⁺ Ions in Relativistic Ion-Atom Collisions

Phys. Rev. A 82, 052712 (2010)

Au ⁷⁷⁺	Energy Levels, Wavelengths	Exp
Au ⁷⁸⁺	Energy Levels, Wavelengths	Exp

405. A. M. Sossah, H.-L. Zhou, S. T. Manson

Photoionization of Potassiumlike Transition-Metal Ions: Ti³⁺ to Fe⁷⁺

Phys. Rev. A 82, 043416 (2010)

K Z= 22-26	Energy Levels, Wavelengths	Th
Ti ³⁺	Energy Levels, Wavelengths	Th
V ⁴⁺	Energy Levels, Wavelengths	Th
Cr ⁵⁺	Energy Levels, Wavelengths	Th

- | | | |
|-------------------------|----------------------------|----|
| Mn ⁶⁺ | Energy Levels, Wavelengths | Th |
| Mn ⁷⁺ | Energy Levels, Wavelengths | Th |
| Fe ⁷⁺ | Energy Levels, Wavelengths | Th |
| Fe ⁸⁺ | Energy Levels, Wavelengths | Th |
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Measurement of the Hyperfine Structure and Isotope Shifts of the $3s^23p^2\ ^3P_2 \rightarrow 3s3p^3\ ^3D_3$ Transition in Silicon
 Phys. Rev. A 82, 042515 (2010)
- | | | |
|-----------|----------------------------|-----|
| Si | Energy Levels, Wavelengths | E/T |
|-----------|----------------------------|-----|
407. K. Yao, Z. Geng, J. Xiao, Y. Yang, C. Chen, Y. Fu, D. Lu, R. Hutton, Y. Zou
KLL Dielectronic Recombination Resonant Strengths of He-like up to O-like Xenon Ions
 Phys. Rev. A 81, 022714 (2010)
- | | | |
|------------------------------|----------------------------|-----|
| Xe ^{46+–52+} | Energy Levels, Wavelengths | Exp |
|------------------------------|----------------------------|-----|
408. A. Ehresmann, W. Kielich, S. Klumpp, P. V. Demekhin, I. D. Petrov, V. L. Sukhorukov, B. M. Lagutin, R. Müller-Albrecht, H. Schmoranzner
Photoionization of Xe Near 5s Threshold: II. 5s- Main Line and Satellites
 Eur. Phys. J. D 59, 161-169 (2010)
- | | | |
|------------------------|----------------------------|----|
| Xe ⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
409. G. A. Doschek, U. Feldman
The Solar UV-X-ray Spectrum from 1.5 to 2000 Å
 J. Phys. B 43, 232001 (2010)
- | | | |
|------------------------------|----------------------------|-----|
| Ca ^{17+–18+} | Energy Levels, Wavelengths | Exp |
| Fe ^{16+–18+} | Energy Levels, Wavelengths | Exp |
| Fe ^{20+–24+} | Energy Levels, Wavelengths | Exp |
410. D.-S. Kim, S. T. Manson
Photoionization of the Be-like O⁴⁺ Ion: Total and Partial Cross Sections for the Ground $2s^2\ ^1S$ and Excited $2s2p\ ^1,^3P$ States
 J. Phys. B 43, 155205 (2010)
- | | | |
|------------------------|----------------------------|----|
| O ⁴⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
411. D. A. Kondratjev, I. L. Beigman, L. A. Vainshtein
Static Polarizabilities of Helium and Alkali Atoms, and Their Isoelectronic Ions
 J. Russ. Laser Res. 31, 294-306 (2010)
- | | | |
|----------------------------|----------------------------|----|
| He | Energy Levels, Wavelengths | Th |
| Li ^{0+–1+} | Energy Levels, Wavelengths | Th |
| Be ⁺ | Energy Levels, Wavelengths | Th |
| B ²⁺ | Energy Levels, Wavelengths | Th |
| C ³⁺ | Energy Levels, Wavelengths | Th |
| Ne ⁷⁺ | Energy Levels, Wavelengths | Th |
| Na | Energy Levels, Wavelengths | Th |
| Mg ⁺ | Energy Levels, Wavelengths | Th |
| Al ²⁺ | Energy Levels, Wavelengths | Th |
| Si ³⁺ | Energy Levels, Wavelengths | Th |
| Ar ⁷⁺ | Energy Levels, Wavelengths | Th |
| K | Energy Levels, Wavelengths | Th |
| Ca ⁺ | Energy Levels, Wavelengths | Th |
| Sc ²⁺ | Energy Levels, Wavelengths | Th |
| Ti ³⁺ | Energy Levels, Wavelengths | Th |

- | | | |
|-----------------------|----------------------------|----|
| Rb | Energy Levels, Wavelengths | Th |
| Sr⁺ | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
| Ba⁺ | Energy Levels, Wavelengths | Th |
412. H. Matsuta, K. Wagatsuma, K. Kitagawa
One and Two-Photon Excited Optogalvanic Spectra of Argon in the Wavelength Region of 735–850 nm
Anal. Sci. 26, 25-31 (2010)
- | | | |
|-----------|----------------------------|-----|
| Ar | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
413. E. Hill, S. Rose
Photoionized Astrophysical Plasmas in the Laboratory
Phys. Plasmas 17, 103301 (2010)
- | | | |
|-----------------------|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
| Li⁺ | Energy Levels, Wavelengths | Th |
414. J.-M. Li, X. Gao, C. Cheng, X.-L. Zhang, B. Qing
A Scenario to Provide Atomic Data for Fusion Research in the Stage of Precision Physics
Plasma Sci. Technol. 12, 335-340 (2010)
- | | | |
|------------------------|----------------------------|----|
| Si³⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
415. V. Lioubimov, M. Wada, M. Ogawa, A. Takamine, T. Nakamura, P. Schury, H. Iimura, K. Okada, A. A. Kolomenskii, H. A. Schuessler, Y. Yamazaki
Precision Fast Ion Beam Laser Spectroscopy of Ar⁺
AIP Conf. Proc. 1104, 42-46 (2009)
- | | | |
|-----------------------|----------------------------|-----|
| Ar⁺ | Energy Levels, Wavelengths | Exp |
|-----------------------|----------------------------|-----|
416. L. Belluzzi, E. Landi Degl'Innocenti
A Spectroscopic Analysis of the Most Polarizing Atomic Lines of the Second Solar Spectrum
Astron. Astrophys. 495, 577-586 (2009)
- | | | |
|---------------------------|----------------------------|-----|
| Y⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Zr⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Pd | Energy Levels, Wavelengths | Exp |
| Eu⁺ | Energy Levels, Wavelengths | Exp |
| Yb | Energy Levels, Wavelengths | Exp |
417. I. Strashnov, D. J. Blagburn, J. D. Gilmour
Hyperfine Structure Induced Isotopic Effects in Krypton Resonance Ionization Mass Spectrometry
Opt. Commun. 282, 3487-3492 (2009)
- | | | |
|-----------|----------------------------|----|
| Kr | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
418. A. G. Kochur, S. Brühl, I. D. Petrov, Ye. B. Mitkina
Xenon 5p-4d Cascade Emission upon 3d-Photoionization
Eur. Phys. J. Spec. Top. 169, 51-58 (2009)
- | | | |
|---------------------------|----------------------------|-----|
| Xe²⁺⁻⁶⁺ | Energy Levels, Wavelengths | E/T |
|---------------------------|----------------------------|-----|
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Resonance Excitation Process for Ni-like Gold
J. Quant. Spectrosc. Radiat. Transfer 110, 2180-2190 (2009)

- Au⁵¹⁺** Energy Levels, Wavelengths Th
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- Cu** Energy Levels, Wavelengths Exp
421. M. Herrmann, V. Batteiger, S. Knünz, G. Saathoff, Th. Udem, T. W. Hänsch
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 Phys. Rev. Lett. 102, 013006 (2009)
- Mg⁺** Energy Levels, Wavelengths Exp
422. V. Tayal, G. P. Gupta
Fine-Structure Energy Levels, Oscillator Strengths and Lifetimes in Cu XVIII
 Phys. Scr. 80, 055301 (2009)
- Cu¹⁷⁺** Energy Levels, Wavelengths Th
423. J.-Y. Zhang, J.-M. Yang, Y. Xu, G.-H. Yang, Y.-N. Ding, J. Yan, J.-M. Yuan, Y.-K. Ding, Z.-J. Zheng, Y. Zhao, Z.-M. Hu
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- Al⁹⁺⁻¹¹⁺** Energy Levels, Wavelengths Exp
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Theoretical Studies on Dielectronic Recombination of Neonlike Gold and Its Effects on Plasma Ionization Balance and Radiation Energy
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- Au⁶⁸⁺** Energy Levels, Wavelengths Th
Au⁶⁹⁺ Energy Levels, Wavelengths Th
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Model Potential Calculations of Oscillator Strength Spectra of Rydberg Li Atoms in External Fields
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- Li** Energy Levels, Wavelengths Th
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Laboratory Spectroscopy of Silicon Plasmas Photoionized by Mimic Astrophysical Compact Objects
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- Si¹¹⁺** Energy Levels, Wavelengths Exp
Si¹²⁺ Energy Levels, Wavelengths Exp
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 Astron. Geophys. 50, 25-28 (2009)

- | | | | |
|------|--|----------------------------|-----|
| | O | Energy Levels, Wavelengths | Exp |
| 428. | J. K. Saha, S. Bhattacharyya, T. K. Mukherjee, P. K. Mukherjee
2pnp ($1,3P^e$) States of Neutral He and Li^+ Ions Under Debye Plasma Screening
J. Phys. B 42, 245701 (2009) | | |
| | He | Energy Levels, Wavelengths | Th |
| | Li^+ | Energy Levels, Wavelengths | Th |
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Use of Partial-Wave Decomposition to Identify Resonant Interference Effects in the Photoionization-Excitation of Argon
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| | Ar^+ | Energy Levels, Wavelengths | E/T |
| 430. | A. Takamine, M. Wada, K. Okada, T. Nakamura, P. Schury, T. Sonoda, V. Lioubimov, H. Iimura, Y. Yamazaki, Y. Kanai, T. M. Kojima, A. Yoshida, T. Kubo, I. Katayama, S. Ohtani, H. Wollnik, H. A. Schuessler
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| | Be^+ | Energy Levels, Wavelengths | Exp |
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| | O | Energy Levels, Wavelengths | Exp |
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| | Cu | Energy Levels, Wavelengths | Exp |
| 433. | G.-L. Wang, X.-X. Zhou
Theoretical Calculation of Photoionization Cross Sections of B-like Ions: N^{2+}, O^{3+} and F^{4+}
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| | B Z= 7-9 | Energy Levels, Wavelengths | Th |
| 434. | R. Sánchez, M. Žáková, Z. Andjelkovic, B. A. Bushaw, K. Dasgupta, G. Ewald, Ch. Geppert, H.-J. Kluge, J. Krämer, M. Nothhelfer, D. Tiedemann, D. F. A. Winters, W. Nörtershäuser
Absolute Frequency Measurements on the $2S \rightarrow 3S$ Transition of Lithium-6,7
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| | Li | Energy Levels, Wavelengths | Exp |
| 435. | S. Fujioka, H. Takabe, N. Yamamoto, D. Salzmann, F.-L. Wang, H. Nishimura, Y.-T. Li, Q.-L. Dong, S.-J. Wang, Y. Zhang, Y.-J. Rhee, Y.-W. Lee, J.-M. Han, M. Tanabe, T. Fujiwara, Y. Nakabayashi, G. Zhao, J. Zhang, K. Mima
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| | Si^{11+} | Energy Levels, Wavelengths | Exp |
| | Si^{12+} | Energy Levels, Wavelengths | Exp |

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- | | | |
|---------------------------|----------------------------|-----|
| Fe⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Fe⁺ | Energy Levels, Wavelengths | Exp |
437. K. Okada, M. Wada, T. Nakamura, A. Takamine, V. Lioubimov, P. Schury, Y. Ishida, T. Sonoda, M. Ogawa, Y. Yamazaki, Y. Kanai, T. M. Kojima, A. Yoshida, T. Kubo, I. Katayama, S. Ohtani, H. Wollnik, H. A. Schuessler
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|-----------------------|----------------------------|-----|
| Be⁺ | Energy Levels, Wavelengths | Exp |
|-----------------------|----------------------------|-----|
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|----------------------------|----------------------------|-----|
| Si⁵⁺⁻¹³⁺ | Energy Levels, Wavelengths | Exp |
|----------------------------|----------------------------|-----|
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|-----------------------------|----------------------------|-----|
| Ar¹⁵⁺⁻¹⁶⁺ | Energy Levels, Wavelengths | Exp |
|-----------------------------|----------------------------|-----|
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|----------------------|----------------------------|-----|
| O⁺ | Energy Levels, Wavelengths | Exp |
|----------------------|----------------------------|-----|
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- | | | |
|-----------------------------|----------------------------|-----|
| Al⁷⁺ | Energy Levels, Wavelengths | Exp |
| Ar⁹⁺⁻¹⁴⁺ | Energy Levels, Wavelengths | Exp |
| Ti¹³⁺⁻¹⁶⁺ | Energy Levels, Wavelengths | Exp |
| Ti¹⁸⁺ | Energy Levels, Wavelengths | Exp |
| Fe¹⁷⁺ | Energy Levels, Wavelengths | Exp |
442. Y. Xu, J.-Y. Zhang, J.-M. Yang, W.-B. Pei, Y.-K. Ding, D.-X. Lai, G.-W. Men, Z. Luo
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 Phys. Plasmas 14, 052701 (2007)
- | | | |
|----------------------------|----------------------------|-----|
| Al⁹⁺⁻¹¹⁺ | Energy Levels, Wavelengths | Exp |
|----------------------------|----------------------------|-----|
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- | | | |
|-----------------------|----------------------------|-----|
| Zr⁺ | Energy Levels, Wavelengths | E/T |
|-----------------------|----------------------------|-----|

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Radiative Lifetime Measurements and Semi-Empirical Transition Probability Calculations in Neutral Rhenium
 Phys. Scr. 74, 297-303 (2006)
- | | | |
|-----------|----------------------------|----|
| Re | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|
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|-----------------------|----------------------------|-----|
| Re⁺ | Energy Levels, Wavelengths | E/T |
|-----------------------|----------------------------|-----|
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 At. Data Nucl. Data Tables 89, 139-194 (2005)
- | | | |
|-------------------------|----------------------------|----|
| Ar¹¹⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
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Exact-Exchange Time-Dependent Density-Functional Theory for Static and Dynamic Polarizabilities
 Phys. Rev. A 71, 032507 (2005)
- | | | |
|-----------|----------------------------|----|
| He | Energy Levels, Wavelengths | Th |
| Ne | Energy Levels, Wavelengths | Th |
| Ar | Energy Levels, Wavelengths | Th |
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 Sol. Sys. Res. 39, 479-488 (2005)
- | | | |
|-----------------------------|----------------------------|-----|
| Mg¹¹⁺ | Energy Levels, Wavelengths | Exp |
| Si¹¹⁺⁻¹³⁺ | Energy Levels, Wavelengths | Exp |
| S¹²⁺⁻¹⁵⁺ | Energy Levels, Wavelengths | Exp |
| Ar¹⁵⁺⁻¹⁷⁺ | Energy Levels, Wavelengths | Exp |
| K¹⁷⁺ | Energy Levels, Wavelengths | Exp |
| Ca¹⁷⁺⁻¹⁸⁺ | Energy Levels, Wavelengths | Exp |
| Fe²²⁺ | Energy Levels, Wavelengths | Exp |
| Fe²⁴⁺ | Energy Levels, Wavelengths | Exp |
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- | | | |
|-----------------------------|----------------------------|-----|
| Ar¹⁴⁺⁻¹⁶⁺ | Energy Levels, Wavelengths | Exp |
|-----------------------------|----------------------------|-----|
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Evolution of a Capillary Discharge Induced by a Semiconductor Current Generator
 Plasma Phys. Rep. 30, 249-254 (2004)
- | | | |
|---------------------------|----------------------------|-----|
| Ar⁵⁺⁻⁷⁺ | Energy Levels, Wavelengths | Exp |
|---------------------------|----------------------------|-----|
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Semiempirical Calculation of van der Waals Coefficients for Alkali-Metal and Alkaline-Earth-Metal Atoms
 Phys. Rev. A 71, 019902 (2003)

Li ^{0+−1+}	Energy Levels, Wavelengths	Th
Be	Energy Levels, Wavelengths	Th
Be ²⁺	Energy Levels, Wavelengths	Th
Na ^{0+−1+}	Energy Levels, Wavelengths	Th
Mg	Energy Levels, Wavelengths	Th
Mg ²⁺	Energy Levels, Wavelengths	Th
K ^{0+−1+}	Energy Levels, Wavelengths	Th
Ca	Energy Levels, Wavelengths	Th
Ca ²⁺	Energy Levels, Wavelengths	Th
Rb ^{0+−1+}	Energy Levels, Wavelengths	Th
Sr	Energy Levels, Wavelengths	Th
Sr ²⁺	Energy Levels, Wavelengths	Th

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Repetitively Pulsed X-ray Laser Operating on the 3p–3s Transition of the Ne-like Argon in a Capillary Discharge

Quantum Electron. 33, 7-17 (2003)

Ar ^{6+−12+}	Energy Levels, Wavelengths	Exp
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453. I. I. Sobel'man, A. P. Shevelko, O. F. Yakushev, L. V. Knight, R. S. Turley

A Capillary Discharge Plasma Source of Intense VUV Radiation

Quantum Electron. 33, 3-6 (2003)

Ne ⁴⁺	Energy Levels, Wavelengths	Exp
Ne ^{6+−7+}	Energy Levels, Wavelengths	Exp
Ar ^{8+−9+}	Energy Levels, Wavelengths	Exp
Kr ^{7+−9+}	Energy Levels, Wavelengths	Exp
Xe ^{9+−11+}	Energy Levels, Wavelengths	Exp

454. Y.-K. Ko, J. C. Raymond, J. Li, A. Ciaravella, J. Michels, S. Fineschi, R. Wu

Solar and Heliospheric Observatory Ultraviolet Coronagraph Spectrometer and Yohkoh Soft X-ray Telescope Observations of the High-Temperature Corona above an Active Region Complex

Astrophys. J. 578, 979-995 (2002)

C ²⁺	Energy Levels, Wavelengths	Exp
N ⁴⁺	Energy Levels, Wavelengths	Exp
O ⁵⁺	Energy Levels, Wavelengths	Exp
Ne ⁸⁺	Energy Levels, Wavelengths	Exp
Mg ⁹⁺	Energy Levels, Wavelengths	Exp
Al ¹⁰⁺	Energy Levels, Wavelengths	Exp
Si ²⁺	Energy Levels, Wavelengths	Exp
Si ⁷⁺	Energy Levels, Wavelengths	Exp
Si ⁸⁺	Energy Levels, Wavelengths	Exp
Si ¹¹⁺	Energy Levels, Wavelengths	Exp
S ⁹⁺	Energy Levels, Wavelengths	Exp
Ar ^{11+−12+}	Energy Levels, Wavelengths	Exp
K ¹²⁺	Energy Levels, Wavelengths	Exp
Ca ⁹⁺	Energy Levels, Wavelengths	Exp
Ca ¹³⁺	Energy Levels, Wavelengths	Exp
Fe ⁹⁺	Energy Levels, Wavelengths	Exp
Fe ¹¹⁺	Energy Levels, Wavelengths	Exp
Fe ¹²⁺	Energy Levels, Wavelengths	Exp
Fe ¹⁴⁺	Energy Levels, Wavelengths	Exp
Fe ¹⁶⁺	Energy Levels, Wavelengths	Exp
Fe ¹⁷⁺	Energy Levels, Wavelengths	Exp
Ni ¹²⁺	Energy Levels, Wavelengths	Exp
Ni ¹³⁺	Energy Levels, Wavelengths	Exp

455. A. J. J. Raassen, R. Mewe, M. Audard, M. Güdel, E. Behar, J. S. Kaastra, R. L. J. van der Meer, C. R. Foley, J.-U. Ness

High-Resolution X-ray Spectroscopy of Procyon by Chandra and XMM-Newton

Astron. Astrophys. 389, 228-238 (2002)

C ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp
N ⁴⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp
O ⁴⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp
Ne ⁴⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp
Mg ⁴⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp
Si ⁵⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp
S ⁶⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp
Ar ⁸⁺	Energy Levels, Wavelengths	Exp
Ar ¹²⁺	Energy Levels, Wavelengths	Exp
Ca ¹⁰⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp
Fe ⁷⁺⁻¹⁷⁺	Energy Levels, Wavelengths	Exp
Ni ⁹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp
Ni ¹⁷⁺	Energy Levels, Wavelengths	Exp

456. J. S. Kaastra, K. C. Steenbrugge, A. J. J. Raassen, R. L. J. van der Meer, A. C. Brinkman, D. A. Liedahl, E. Behar, A. de Rosa

X-ray Spectroscopy of NGC 5548

Astron. Astrophys. 386, 427-445 (2002)

C ³⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp
N ⁴⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp
O ⁵⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp
Ne ⁸⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp
Na ⁹⁺⁻¹⁰⁺	Energy Levels, Wavelengths	Exp
Mg ⁸⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp
Si ⁷⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp
S ⁹⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp
Ar ¹²⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp
Fe ⁶⁺⁻²³⁺	Energy Levels, Wavelengths	Exp

457. V. Bazin, P. Boduch, M. Chantepie, E. Jacquet, H. Kucal, D. Lecler

Excitation and Alignment Effects in Ar⁸⁺-Cs(6s,6p) Collisions at Low Energies

Phys. Rev. A 65, 032712 (2002)

Ar ⁷⁺	Energy Levels, Wavelengths	Exp
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458. H. Daido

Review of Soft X-ray Laser Researches and Developments

Rep. Prog. Phys. 65, 1513-1576 (2002)

Ne Z= 14-17	Energy Levels, Wavelengths	E/T
Ar ⁸⁺	Energy Levels, Wavelengths	E/T
K ⁹⁺	Energy Levels, Wavelengths	E/T
Ca ¹⁰⁺	Energy Levels, Wavelengths	E/T
Sc ¹¹⁺	Energy Levels, Wavelengths	E/T
Ti ¹²⁺	Energy Levels, Wavelengths	E/T
V ¹³⁺	Energy Levels, Wavelengths	E/T
Cr ¹⁴⁺	Energy Levels, Wavelengths	E/T
Mn ¹⁵⁺	Energy Levels, Wavelengths	E/T
Fe ¹⁶⁺	Energy Levels, Wavelengths	E/T
Ni ¹⁸⁺	Energy Levels, Wavelengths	E/T
Cu ¹⁹⁺	Energy Levels, Wavelengths	E/T
Zn ²⁰⁺	Energy Levels, Wavelengths	E/T
Ga ²¹⁺	Energy Levels, Wavelengths	E/T
Ge ²²⁺	Energy Levels, Wavelengths	E/T

As ²³⁺	Energy Levels, Wavelengths	E/T
Se ²⁴⁺	Energy Levels, Wavelengths	E/T
Kr ⁸⁺	Energy Levels, Wavelengths	E/T
Rb ²⁷⁺	Energy Levels, Wavelengths	E/T
Sr ²⁸⁺	Energy Levels, Wavelengths	E/T
Y ¹¹⁺	Energy Levels, Wavelengths	E/T
Y ²⁹⁺	Energy Levels, Wavelengths	E/T
Zr ¹²⁺	Energy Levels, Wavelengths	E/T
Zr ³⁰⁺	Energy Levels, Wavelengths	E/T
Nb ¹³⁺	Energy Levels, Wavelengths	E/T
Nb ³¹⁺	Energy Levels, Wavelengths	E/T
Mo ¹⁴⁺	Energy Levels, Wavelengths	E/T
Mo ³²⁺	Energy Levels, Wavelengths	E/T
Pd ¹⁸⁺	Energy Levels, Wavelengths	E/T
Ag ¹⁹⁺	Energy Levels, Wavelengths	E/T
Cd ²⁰⁺	Energy Levels, Wavelengths	E/T
In ²¹⁺	Energy Levels, Wavelengths	E/T
Sn ²²⁺	Energy Levels, Wavelengths	E/T
Te ²⁴⁺	Energy Levels, Wavelengths	E/T
Xe ²⁶⁺	Energy Levels, Wavelengths	E/T
La ²⁹⁺	Energy Levels, Wavelengths	E/T
Ce ³⁰⁺	Energy Levels, Wavelengths	E/T
Pr ³¹⁺	Energy Levels, Wavelengths	E/T
Nd ³²⁺	Energy Levels, Wavelengths	E/T
Sm ³⁴⁺	Energy Levels, Wavelengths	E/T
Eu ³⁵⁺	Energy Levels, Wavelengths	E/T
Gd ³⁶⁺	Energy Levels, Wavelengths	E/T
Tb ³⁷⁺	Energy Levels, Wavelengths	E/T
Dy ³⁸⁺	Energy Levels, Wavelengths	E/T
Ho ³⁹⁺	Energy Levels, Wavelengths	E/T
Yb ⁴²⁺	Energy Levels, Wavelengths	E/T
Hf ⁴⁴⁺	Energy Levels, Wavelengths	E/T
Ta ⁴⁵⁺	Energy Levels, Wavelengths	E/T
W ⁴⁶⁺	Energy Levels, Wavelengths	E/T
Au ⁵¹⁺	Energy Levels, Wavelengths	E/T

459. R. Mewe, A. J. J. Raassen, J. J. Drake, J. S. Kaastra, R. L. J. van der Meer, D. Porquet
Chandra-LETGS X-ray Observations of Capella. Temperature, Density and Abundance Diagnostics
Astron. Astrophys. 368, 888-900 (2001)

C ^{4+–5+}	Energy Levels, Wavelengths	Exp
N ^{5+–6+}	Energy Levels, Wavelengths	Exp
O ^{6+–7+}	Energy Levels, Wavelengths	Exp
Ne ⁸⁺	Energy Levels, Wavelengths	Exp
Mg ^{9+–11+}	Energy Levels, Wavelengths	Exp
Si ^{10+–13+}	Energy Levels, Wavelengths	Exp
Fe ^{8+–9+}	Energy Levels, Wavelengths	Exp
Fe ^{14+–21+}	Energy Levels, Wavelengths	Exp
Ni ¹⁸⁺	Energy Levels, Wavelengths	Exp

460. K. P. Dere, E. Landi, P. R. Young, G. Del Zanna
CHIANTI—An Atomic Database for Emission Lines. IV. Extension to X-ray Wavelengths
Astrophys. J., Suppl. Ser. 134, 331-354 (2001)

C ^{4+–5+}	Energy Levels, Wavelengths	E/T
N ^{5+–6+}	Energy Levels, Wavelengths	E/T
O ^{6+–7+}	Energy Levels, Wavelengths	E/T
Ne ^{8+–9+}	Energy Levels, Wavelengths	E/T

Na ^{9+–10+}	Energy Levels, Wavelengths	E/T
Mg ^{9+–11+}	Energy Levels, Wavelengths	E/T
Al ^{10+–12+}	Energy Levels, Wavelengths	E/T
Si ^{10+–13+}	Energy Levels, Wavelengths	E/T
P ¹²⁺	Energy Levels, Wavelengths	E/T
S ⁹⁺	Energy Levels, Wavelengths	E/T
S ^{11+–15+}	Energy Levels, Wavelengths	E/T
Ar ^{13+–17+}	Energy Levels, Wavelengths	E/T
K ¹⁶⁺	Energy Levels, Wavelengths	E/T
Ca ^{11+–19+}	Energy Levels, Wavelengths	E/T
Cr ^{14+–15+}	Energy Levels, Wavelengths	E/T
Cr ²¹⁺	Energy Levels, Wavelengths	E/T
Fe ^{15+–25+}	Energy Levels, Wavelengths	E/T
Ni ^{15+–16+}	Energy Levels, Wavelengths	E/T
Ni ^{18+–19+}	Energy Levels, Wavelengths	E/T
Ni ^{24+–27+}	Energy Levels, Wavelengths	E/T

461. M. Mattioli, K. B. Fournier, L. Carraro, I. Coffey, C. Giroud, K. Lawson, P. Monier-Garbet, M. O’Mullane, J. Ongena, M. E. Puiatti, F. Sattin, P. Scarin, M. Valisa
Experimental and Simulated Argon Spectra in the 2.3–3.4 nm Region from Tokamak Plasmas
J. Phys. B 34, 127-142 (2001)

Ar ¹⁴⁺	Energy Levels, Wavelengths	E/T
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462. L. Wallace, M. R. Meyer, K. Hinkle, S. Edwards
Near-Infrared Classification Spectroscopy: J-Band Spectra of Fundamental MK Standards
Astrophys. J. 535, 325-337 (2000)

H	Energy Levels, Wavelengths	Exp
He	Energy Levels, Wavelengths	Exp
C	Energy Levels, Wavelengths	Exp
Na	Energy Levels, Wavelengths	Exp
Mg	Energy Levels, Wavelengths	Exp
Al	Energy Levels, Wavelengths	Exp
Si	Energy Levels, Wavelengths	Exp
K	Energy Levels, Wavelengths	Exp
Ca ⁺	Energy Levels, Wavelengths	Exp
Ti	Energy Levels, Wavelengths	Exp
Mn	Energy Levels, Wavelengths	Exp
Fe	Energy Levels, Wavelengths	Exp
Sr ⁺	Energy Levels, Wavelengths	Exp

463. S. Casassus, P. F. Roche, M. J. Barlow
The Coronal Line Regions of Planetary Nebulae NGC 6302 And 6537: 3–13 μm Grating and Echelle Spectroscopy
Mon. Not. R. Astron. Soc. 314, 657-671 (2000)

He ^{0+–1+}	Energy Levels, Wavelengths	Exp
Ne ^{+–2+}	Energy Levels, Wavelengths	Exp
Ne ^{4+–5+}	Energy Levels, Wavelengths	Exp
Na ^{5+–6+}	Energy Levels, Wavelengths	Exp
Mg ⁴⁺	Energy Levels, Wavelengths	Exp
Mg ^{6+–7+}	Energy Levels, Wavelengths	Exp
Al ^{4+–5+}	Energy Levels, Wavelengths	Exp
Si ⁵⁺	Energy Levels, Wavelengths	Exp
Si ⁶⁺	Energy Levels, Wavelengths	Exp
Si ⁸⁺	Energy Levels, Wavelengths	Exp
S ^{2+–3+}	Energy Levels, Wavelengths	Exp

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|---|----------------------------|-----|
| Ar²⁺ | Energy Levels, Wavelengths | Exp |
| Ar⁴⁺ | Energy Levels, Wavelengths | Exp |
| Ar⁵⁺ | Energy Levels, Wavelengths | Exp |
| K²⁺ | Energy Levels, Wavelengths | Exp |
| K⁶⁺ | Energy Levels, Wavelengths | Exp |
| 464. A. Ben-Kish, A. Fisher, E. Cheifetz, J. L. Schwob
Extreme Ultraviolet–Vacuum Ultraviolet Spectrum Detection Using Image Plates
Rev. Sci. Instrum. 71, 2651-2654 (2000) | | |
| O⁵⁺ | Energy Levels, Wavelengths | Exp |
| Ar^{6+–12+} | Energy Levels, Wavelengths | Exp |
| 465. V. Bazin, P. Boduch, M. Chantepie, G. Cremer, E. Jacquet, H. Kucal, D. Lecler
Velocity Dependence of Single-Electron Capture for the 0.4–5-keV/amu Ar⁸⁺-Cs(6s) Collision System
Phys. Rev. A 62, 052706 (2000) | | |
| Ar⁷⁺ | Energy Levels, Wavelengths | Exp |
| 466. Z.-C. Yan, G. W. F. Drake
Lithium Isotope Shifts as a Measure of Nuclear Size
Phys. Rev. A 61, 022504 (2000) | | |
| Li | Energy Levels, Wavelengths | Th |
| 467. A. Hildebrand, L. Juschkin, M. Kröger
Investigation of Dense Argon Plasmas in a Simple Capillary Discharge
Contrib. Plasma Phys. 40, 130-134 (2000) | | |
| Ar⁸⁺ | Energy Levels, Wavelengths | Exp |
| 468. H. Daido, H.-J. Tang, Y. Kato, K. Murai
Review of Collisional Excitation Neon-like and Nickel-like Soft X-ray Lasers Pumped by Multiple Infrared Laser Pulses at the Institute of Laser Engineering, Osaka University
C. R. Acad. Sci. Ser. IV 1, 999-1018 (2000) | | |
| Ge⁴⁺ | Energy Levels, Wavelengths | Exp |
| Ag¹⁹⁺ | Energy Levels, Wavelengths | Exp |
| Nd³²⁺ | Energy Levels, Wavelengths | Exp |
| Sm³⁴⁺ | Energy Levels, Wavelengths | Exp |
| Gd³⁶⁺ | Energy Levels, Wavelengths | Exp |
| Tb³⁷⁺ | Energy Levels, Wavelengths | Exp |
| Yb⁴²⁺ | Energy Levels, Wavelengths | Exp |
| Hf⁴⁴⁺ | Energy Levels, Wavelengths | Exp |
| Ta⁴⁵⁺ | Energy Levels, Wavelengths | Exp |
| 469. D. H. Brooks, G. A. Fischbacher, A. Fludra, R. A. Harrison, D. E. Innes, E. Landi, M. Landini, J. Lang, A. C. Lanzafame, S. D. Loch, R. W. P. McWhirter, H. P. Summers, W. T. Thompson
The Quiet Sun Extreme Ultraviolet Spectrum Observed in Normal Incidence by the SOHO Coronal Diagnostic Spectrometer
Astron. Astrophys. 347, 277-312 (1999) | | |
| He^{0+–1+} | Energy Levels, Wavelengths | Exp |
| C²⁺ | Energy Levels, Wavelengths | Exp |
| O^{+–4+} | Energy Levels, Wavelengths | Exp |
| Ne^{3+–6+} | Energy Levels, Wavelengths | Exp |
| Mg^{3+–9+} | Energy Levels, Wavelengths | Exp |
| Al^{6+–7+} | Energy Levels, Wavelengths | Exp |

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|------|---|----------------------------|-----|
| | Al ^{9+–10+} | Energy Levels, Wavelengths | Exp |
| | Si ^{7+–11+} | Energy Levels, Wavelengths | Exp |
| | S ⁴⁺ | Energy Levels, Wavelengths | Exp |
| | Ar ^{6+–7+} | Energy Levels, Wavelengths | Exp |
| | K ⁸⁺ | Energy Levels, Wavelengths | Exp |
| | Ca ^{6+–7+} | Energy Levels, Wavelengths | Exp |
| | Ca ⁹⁺ | Energy Levels, Wavelengths | Exp |
| | Fe ^{9+–13+} | Energy Levels, Wavelengths | Exp |
| 470. | S. Bliman, M. Cornille, B. A. Huber, H. Lebius, A. Langereis, J. Nordgren, R. Bruch
Collision Spectroscopy of Ar⁸⁺+H₂ at Low Velocities (v<1 a.u.)
Phys. Rev. A 60, 2799-2807 (1999) | | |
| | Ar ⁷⁺ | Energy Levels, Wavelengths | Exp |
| 471. | Z.-C. Yan
Double Photoionization of Li and Be⁺ at High-Energy Limits
Phys. Rev. A 60, R3358-R3360 (1999) | | |
| | Li | Energy Levels, Wavelengths | Th |
| | Li ^{0+–1+} | Energy Levels, Wavelengths | Th |
| 472. | I. Kink
Spectroscopy of Highly Charged Ions: New Studies in the He, Be, N, O, Na and Mg Isoelectronic Sequences
Thesis, Univ. Lund, Physics Dept., Lund, Sweden , (1999) | | |
| | He Z= 7-8 | Energy Levels, Wavelengths | E/T |
| | O Z= 13-17 | Energy Levels, Wavelengths | E/T |
| | Mg Z= 21-26 | Energy Levels, Wavelengths | E/T |
| | O ⁴⁺ | Energy Levels, Wavelengths | E/T |
| | Ar ^{10+–11+} | Energy Levels, Wavelengths | E/T |
| 473. | U. Feldman, W. Curdt, G. A. Doschek, U. Schühle, K. Wilhelm, P. Lemaire
High-Temperature Lines in SUMER Spectra Recorded Above a Bright Solar Active Region
Astrophys. J. 503, 467-474 (1998) | | |
| | Ar ^{11+–12+} | Energy Levels, Wavelengths | Exp |
| | Ca ^{12+–14+} | Energy Levels, Wavelengths | Exp |
| | Fe ^{16+–18+} | Energy Levels, Wavelengths | Exp |
| | Ni ^{12+–14+} | Energy Levels, Wavelengths | Exp |
| 474. | P. S. Antsiferov, L. A. Dorokhin, E. Yu. Khautiev, Yu. V. Sidelnikov, D. A. Glushkov, I. V. Lugovenko, K. N. Koshelev
Dynamics of a Plasma in a Capillary Discharge Driven by a Plasma Focus Operated in the Mode of a Plasma Switch Opening
J. Phys. D 31, 2013-2017 (1998) | | |
| | Ar ^{4+–9+} | Energy Levels, Wavelengths | Exp |
| | Ar ⁸⁺ | Energy Levels, Wavelengths | Exp |
| 475. | D. G. Whyte, R. C. Isler, M. R. Wade, D. R. Schultz, P. S. Krstic, C. C. Hung, W. P. West
Argon Density Measurements from Charge-Exchange Spectroscopy
Phys. Plasmas 5, 3694-3699 (1998) | | |
| | Ar ^{15+–17+} | Energy Levels, Wavelengths | Exp |
| 476. | C. Jordan, G. M. Harper
Identifications of Emission Lines in GHRS Spectra of RR Tel
ASP Conf. Ser. 154, The Tenth Cambridge Workshop on Cool Stars, Stellar Systems and the Sun, San Francisco, CA ;br>Astron. Soc. of Pacific, (1998) | | |

He ⁺	Energy Levels, Wavelengths	Exp
C ³⁺	Energy Levels, Wavelengths	Exp
O ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp
Ne ³⁺	Energy Levels, Wavelengths	Exp
Al ⁵⁺	Energy Levels, Wavelengths	Exp
Si ³⁺	Energy Levels, Wavelengths	Exp
Fe ⁺²⁺	Energy Levels, Wavelengths	Exp

477. J. C. Raymond, J. L. Kohl, G. Noci, E. Antonucci, G. Tondello, M. C. E. Huber, L. D. Gardner, P. Nicolosi, S. Fineschi, M. Romoli, D. Spadaro, O. H. W. Siegmund, C. Benna, A. Ciaravella, S. Cranmer, S. Giordano, M. Karovska, R. Martin, J. Michels, A. Modigliani, G. Naletto, A. Panasyuk, C. Pernechele, G. Poletto, P. L. Smith, R. M. Suleiman, L. Strachan
Composition of Coronal Streamers from the SOHO Ultraviolet Coronagraph Spectrometer
Sol. Phys. 175, 645-665 (1997)

H	Energy Levels, Wavelengths	Exp
N ⁴⁺	Energy Levels, Wavelengths	Exp
O ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp
Mg ⁹⁺	Energy Levels, Wavelengths	Exp
Al ¹⁰⁺	Energy Levels, Wavelengths	Exp
Si ¹¹⁺	Energy Levels, Wavelengths	Exp
S ⁹⁺	Energy Levels, Wavelengths	Exp
S ¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp
Ar ¹¹⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp
Ca ⁹⁺	Energy Levels, Wavelengths	Exp
Fe ⁹⁺	Energy Levels, Wavelengths	Exp
Fe ¹¹⁺	Energy Levels, Wavelengths	Exp
Fe ¹²⁺	Energy Levels, Wavelengths	Exp
Ni ¹²⁺	Energy Levels, Wavelengths	Exp

478. J. L. Kohl, G. Noci, E. Antonucci, G. Tondello, M. C. E. Huber, L. D. Gardner, P. Nicolosi, L. Strachan, S. Fineschi, J. C. Raymond, M. Romoli, D. Spadaro, A. Panasyuk, O. H. W. Siegmund, C. Benna, A. Ciaravella, S. R. Cranmer, S. Giordano, M. Karovska, R. Martin, J. Michels, A. Modigliani, G. Naletto, C. Pernechele, G. Poletto, P. L. Smith
First Results from the SOHO Ultraviolet Coronagraph Spectrometer
Sol. Phys. 175, 613-644 (1997)

H	Energy Levels, Wavelengths	Exp
N ⁴⁺	Energy Levels, Wavelengths	Exp
O ⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp
Mg ⁹⁺	Energy Levels, Wavelengths	Exp
Al ¹⁰⁺	Energy Levels, Wavelengths	Exp
Si ¹¹⁺	Energy Levels, Wavelengths	Exp
S ⁹⁺	Energy Levels, Wavelengths	Exp
S ¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp
Ar ¹¹⁺⁻¹³⁺	Energy Levels, Wavelengths	Exp
Ca ⁹⁺	Energy Levels, Wavelengths	Exp
Fe ⁹⁺	Energy Levels, Wavelengths	Exp
Fe ¹¹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp
Ni ¹²⁺	Energy Levels, Wavelengths	Exp

479. F. C. McKenna, F. P. Keenan, N. C. Hambly, C. Allende Prieto, W. R. J. Rolleston, L. H. Aller, W. A. Feibelman
The Optical Spectral Line List of RR Telescopii
Astrophys. J., Suppl. Ser. 109, 225-239 (1997)

H	Energy Levels, Wavelengths	Exp
He ⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp
C ⁺⁴⁺	Energy Levels, Wavelengths	Exp

N ^{0+−4+}	Energy Levels, Wavelengths	Exp
O ^{0+−5+}	Energy Levels, Wavelengths	Exp
Ne ^{+−3+}	Energy Levels, Wavelengths	Exp
Na ⁴⁺	Energy Levels, Wavelengths	Exp
Mg ^{0+−1+}	Energy Levels, Wavelengths	Exp
Si ^{0+−3+}	Energy Levels, Wavelengths	Exp
S ^{+−2+}	Energy Levels, Wavelengths	Exp
Ar ^{2+−4+}	Energy Levels, Wavelengths	Exp
K ^{3+−4+}	Energy Levels, Wavelengths	Exp
Ca ⁺	Energy Levels, Wavelengths	Exp
Ca ^{4+−6+}	Energy Levels, Wavelengths	Exp
Sc ⁺	Energy Levels, Wavelengths	Exp
Ti ⁺	Energy Levels, Wavelengths	Exp
V ⁺	Energy Levels, Wavelengths	Exp
Cr ⁺	Energy Levels, Wavelengths	Exp
Cr ^{3+−4+}	Energy Levels, Wavelengths	Exp
Mn ³⁺	Energy Levels, Wavelengths	Exp
Fe ^{+−6+}	Energy Levels, Wavelengths	Exp
Co ⁺	Energy Levels, Wavelengths	Exp
Co ^{5+−6+}	Energy Levels, Wavelengths	Exp
Ni ^{0+−5+}	Energy Levels, Wavelengths	Exp
Ni ⁷⁺	Energy Levels, Wavelengths	Exp
Cu ⁺	Energy Levels, Wavelengths	Exp
Zr ⁺	Energy Levels, Wavelengths	Exp
480. H. Hegazy, S. Büscher, H.-J. Kunze, Th. Wrubel		
Profiles of Transitions in Ar VIII		
J. Quant. Spectrosc. Radiat. Transfer 58, 627-635 (1997)		
Ar ⁷⁺	Energy Levels, Wavelengths	Exp
481. C. Laulhé, E. Jacquet, G. Cremer, J. Pascale, Ph. Boduch, G. Rieger, M. Chantepie, D. Lecler		
Projectile Velocity Dependence of Emission Line Polarization Degrees Following Slow Ar⁸⁺-Li(2s) State-Selective Electron-Capture Collisions		
Phys. Rev. A 55, 1088-1098 (1997)		
Ar ⁷⁺	Energy Levels, Wavelengths	Exp
482. A. Hildebrand, A. Ruhrmann, S. Maurmann, H.-J. Kunze		
Amplified Spontaneous Emission on the J = 2 → 1, 3p-3s Transition of Neonlike Argon in a Capillary Discharge		
Phys. Lett. A 221, 335-338 (1996)		
O ²⁺	Energy Levels, Wavelengths	Exp
Ar ^{3+−8+}	Energy Levels, Wavelengths	Exp
483. L. Wallace, K. Hinkle		
High-Resolution Spectra of Ordinary Cool Stars in the K Band		
Astrophys. J., Suppl. Ser. 107, 312-390 (1996)		
H	Energy Levels, Wavelengths	Exp
C	Energy Levels, Wavelengths	Exp
Na	Energy Levels, Wavelengths	Exp
Mg	Energy Levels, Wavelengths	Exp
Al	Energy Levels, Wavelengths	Exp
Si	Energy Levels, Wavelengths	Exp
S	Energy Levels, Wavelengths	Exp
Ca ^{0+−1+}	Energy Levels, Wavelengths	Exp
Sc	Energy Levels, Wavelengths	Exp
Ti	Energy Levels, Wavelengths	Exp

- | | | |
|----|----------------------------|-----|
| V | Energy Levels, Wavelengths | Exp |
| Fe | Energy Levels, Wavelengths | Exp |
| Ni | Energy Levels, Wavelengths | Exp |
484. T. Bastin
Contribution à l'étude des ions N II, Ne IV et Ne V par les méthodes faisceau-lame et faisceau-lame-laser
 Thesis, Univ. Liège, Belgium , (1996)
- | | | |
|---------------------|----------------------------|-----|
| Ne ⁰⁺⁻⁷⁺ | Energy Levels, Wavelengths | Exp |
| Ne ³⁺ | Energy Levels, Wavelengths | Exp |
| Ne ⁴⁺ | Energy Levels, Wavelengths | Exp |
485. W. L. Wiese, J. R. Fuhr, T. M. Deters
Atomic Transition Probabilities of Carbon, Nitrogen, and Oxygen – A Critical Data Compilation, J. Phys. Chem. Ref. Data, Monograph No. 7
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| N ⁶⁺ | Energy Levels, Wavelengths | Th |
|-----------------|----------------------------|----|
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| Kr | Energy Levels, Wavelengths | Exp |
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| Ar ⁷⁺ | Energy Levels, Wavelengths | Exp |
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|------------------|----------------------------|-----|
| Ar ⁷⁺ | Energy Levels, Wavelengths | Exp |
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| Ar ⁶⁺⁻¹²⁺ | Energy Levels, Wavelengths | Exp |
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Velocity and Core-Electron Effects in State-Selective Electron Capture Following Ar⁸⁺-Li Collisions
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| Ar ⁷⁺ | Energy Levels, Wavelengths | Exp |
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| V | Energy Levels, Wavelengths | Exp |
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Ar⁷⁺ Energy Levels, Wavelengths Exp

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Li Energy Levels, Wavelengths Th

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N Energy Levels, Wavelengths Th

O Energy Levels, Wavelengths Th

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Ar⁸⁺ Energy Levels, Wavelengths Exp

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O⁵⁺ Energy Levels, Wavelengths Exp

Ar^{9+–13+} Energy Levels, Wavelengths Exp

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Mg⁴⁺ Energy Levels, Wavelengths Exp

Ar¹⁰⁺ Energy Levels, Wavelengths Exp

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|-----------|----------------------------|-----|
| Si | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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| Cu | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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| Zr | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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| Ar⁶⁺ | Energy Levels, Wavelengths | Exp |
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|---------------------------|----------------------------|-----|
| Li | Energy Levels, Wavelengths | E/T |
| Li⁺ | Energy Levels, Wavelengths | E/T |
| Be⁰⁺⁻²⁺ | Energy Levels, Wavelengths | E/T |
| B⁺³⁺ | Energy Levels, Wavelengths | E/T |
| C²⁺⁻⁴⁺ | Energy Levels, Wavelengths | E/T |
| O⁴⁺⁻⁶⁺ | Energy Levels, Wavelengths | E/T |
| F⁷⁺ | Energy Levels, Wavelengths | E/T |
| Ne⁶⁺⁻⁸⁺ | Energy Levels, Wavelengths | E/T |
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| Zr | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|

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Energy levels and oscillator strength of Ni XXIII
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Atomic data and spectral line intensities for Fe XV
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Transition probabilities and oscillator strengths of E1 transitions in Fe XII and Fe XIV
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Fe¹³⁺ Trans. prob., Oscill. Strengths Th
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Oscillator strengths and transition probabilities for allowed and forbidden transitions in Fe XIX
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Atomic data and spectral line intensities for Ni XVII
 At. Data Nucl. Data Tables 97, 189-224 (2011)
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Atomic data and spectral line intensities for Ni XI
 At. Data Nucl. Data Tables 97, 50-108 (2011)
- Ni¹⁰⁺** Trans. prob., Oscill. Strengths Th
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	Ne⁶⁺	Trans. prob., Oscill. Strengths	Th
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	Zn Z= 30-66	Trans. prob., Oscill. Strengths	Th
	Zn	Trans. prob., Oscill. Strengths	Th
	Ga⁺	Trans. prob., Oscill. Strengths	Th
	Ge²⁺	Trans. prob., Oscill. Strengths	Th
	As³⁺	Trans. prob., Oscill. Strengths	Th
	Se⁴⁺	Trans. prob., Oscill. Strengths	Th
	Br⁵⁺	Trans. prob., Oscill. Strengths	Th
	Kr⁶⁺	Trans. prob., Oscill. Strengths	Th
	Rb⁷⁺	Trans. prob., Oscill. Strengths	Th
	Sr⁸⁺	Trans. prob., Oscill. Strengths	Th
	Y⁹⁺	Trans. prob., Oscill. Strengths	Th
	Zr¹⁰⁺	Trans. prob., Oscill. Strengths	Th
	Nb¹¹⁺	Trans. prob., Oscill. Strengths	Th
	Mo¹²⁺	Trans. prob., Oscill. Strengths	Th
	In¹⁹⁺	Trans. prob., Oscill. Strengths	Th
	Xe²⁴⁺	Trans. prob., Oscill. Strengths	Th
	Dy³⁶⁺	Trans. prob., Oscill. Strengths	Th
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	Fe¹⁸⁺	Trans. prob., Oscill. Strengths	Th
531.	W. R. Johnson Hyperfine quenching: Review of experiment and theory Can. J. Phys. 89, 429-437 (2011)		
	N³⁺	Trans. prob., Oscill. Strengths	E/T
	F⁷⁺	Trans. prob., Oscill. Strengths	E/T
	Mg	Trans. prob., Oscill. Strengths	E/T
	Al⁺	Trans. prob., Oscill. Strengths	E/T
	Al¹¹⁺	Trans. prob., Oscill. Strengths	E/T
	P¹³⁺	Trans. prob., Oscill. Strengths	E/T
	Ca	Trans. prob., Oscill. Strengths	E/T
	Sc¹⁹⁺	Trans. prob., Oscill. Strengths	E/T
	Ti¹⁸⁺	Trans. prob., Oscill. Strengths	E/T
	V²¹⁺	Trans. prob., Oscill. Strengths	E/T
	Mn²³⁺	Trans. prob., Oscill. Strengths	E/T
	Co²⁵⁺	Trans. prob., Oscill. Strengths	E/T
	Ni²⁶⁺	Trans. prob., Oscill. Strengths	E/T
	Cu²⁷⁺	Trans. prob., Oscill. Strengths	E/T
	Ga²⁹⁺	Trans. prob., Oscill. Strengths	E/T
	Br³³⁺	Trans. prob., Oscill. Strengths	E/T
	Rb³⁵⁺	Trans. prob., Oscill. Strengths	E/T
	Sr	Trans. prob., Oscill. Strengths	E/T
	Nb³⁹⁺	Trans. prob., Oscill. Strengths	E/T
	Tc⁴¹⁺	Trans. prob., Oscill. Strengths	E/T

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| Ag ⁴⁵⁺ | Trans. prob., Oscill. Strengths | E/T |
| Gd ⁶²⁺ | Trans. prob., Oscill. Strengths | E/T |
| Yb | Trans. prob., Oscill. Strengths | E/T |
| Au ⁷⁷⁺ | Trans. prob., Oscill. Strengths | E/T |
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The effects of quantum interference between direct and resonant photorecombination of H-like Ar¹⁷⁺ ions
 Phys. Scr. 84, 045301 (2011)
- | | | |
|--------------------------|---------------------------------|----|
| Ar ¹⁶⁺ | Trans. prob., Oscill. Strengths | Th |
|--------------------------|---------------------------------|----|
533. F. Hu, C.-K. Wang, J.-M. Yang, G. Jiang, L.-H. Hao
Multiconfiguration Dirac-Fock calculations of transition probabilities of some tungsten ions
 Phys. Scr. 84, 015302 (2011)
- | | | |
|-------------------------|---------------------------------|----|
| W ⁶¹⁺ | Trans. prob., Oscill. Strengths | Th |
| W ⁶²⁺ | Trans. prob., Oscill. Strengths | Th |
534. U. I. Safronova, A. S. Safronova
Correlation and relativistic effects for the 4f-nl and 5p-nl multipole transitions in Er-like tungsten
 Phys. Rev. A 84, 012511 (2011)
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|------------------------|---------------------------------|----|
| W ⁶⁺ | Trans. prob., Oscill. Strengths | Th |
|------------------------|---------------------------------|----|
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Electron-impact excitation of singly charged metal ions
 Phys. Rev. A 83, 062701 (2011)
- | | | |
|------------------------|---------------------------------|----|
| Mg ⁺ | Trans. prob., Oscill. Strengths | Th |
| Ca ⁺ | Trans. prob., Oscill. Strengths | Th |
| Zn ⁺ | Trans. prob., Oscill. Strengths | Th |
| Cd ⁺ | Trans. prob., Oscill. Strengths | Th |
| Ba ⁺ | Trans. prob., Oscill. Strengths | Th |
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Interelectronic-interaction effects on the two-photon decay rates of heavy He-like ions
 Phys. Rev. A 83, 062508 (2011)
- | | | |
|--------------------|---------------------------------|----|
| He Z= 28-92 | Trans. prob., Oscill. Strengths | Th |
|--------------------|---------------------------------|----|
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Theoretical study of the C⁻ ⁴S_{3/2}^o and ²D_{3/2,5/2}^o bound states and C ground configuration: Fine and hyperfine structures, isotope shifts, and transition probabilities
 Phys. Rev. A 83, 062505 (2011)
- | | | |
|-----------------------|---------------------------------|----|
| C ⁻ | Trans. prob., Oscill. Strengths | Th |
| C | Trans. prob., Oscill. Strengths | Th |
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Fine-structure energy levels, oscillator strengths and lifetimes in Cu XVI
 Phys. Scr. 83, 055301 (2011)
- | | | |
|--------------------------|---------------------------------|----|
| Cu ¹⁵⁺ | Trans. prob., Oscill. Strengths | Th |
|--------------------------|---------------------------------|----|
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Spin-forbidden radiative decay rates from the 3 ³P_{1,2} and 3 ¹P₁ states of helium
 Phys. Rev. A 83, 042503 (2011)

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|------|---|---------------------------------|----|
| | He | Trans. prob., Oscill. Strengths | Th |
| 540. | Yu. Ralchenko, I. N. Draganić, D. Osin, J. D. Gillaspy, J. Reader
Spectroscopy of diagnostically important magnetic-dipole lines in highly charged $3d^n$ ions of tungsten
Phys. Rev. A 83, 032517 (2011) | | |
| | W^{47+–55+} | Trans. prob., Oscill. Strengths | Th |
| 541. | G. Gaigalas, Z. Rudzikas, P. Rynkun, A. Alkauskas
Dependence of the probabilities of the electric-multipole electron transitions in W^{24+} on multipolarity
Phys. Rev. A 83, 032509 (2011) | | |
| | W²⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| 542. | L. Zhang, G. Jiang, L.-H. Hao, B.-L. Deng
Relativistic configuration interaction calculations on $K\alpha$ x-ray satellites of krypton
Phys. Scr. 83, 025302 (2011) | | |
| | Kr^{26+–34+} | Trans. prob., Oscill. Strengths | Th |
| 543. | K. M. Aggarwal, T. Kato, F. P. Keenan, I. Murakami
Energy levels, radiative rates and electron impact excitation rates for transitions in He-like Li II, Be III, B IV and C V
Phys. Scr. 83, 015302 (2011) | | |
| | He Z= 3-6 | Trans. prob., Oscill. Strengths | Th |
| 544. | S. S. Tayal
Accurate transition rates for intercombination lines of singly ionized nitrogen
Phys. Rev. A 83, 012515 (2011) | | |
| | N⁺ | Trans. prob., Oscill. Strengths | Th |
| 545. | P. Beiersdorfer, M. Obst, U. I. Safronova
Radiative decay probabilities of the $(2s^2 2p^5_{1/2} 3s_{1/2})_{J=0}$ level in neonlike ions
Phys. Rev. A 83, 012514 (2011) | | |
| | Ne Z= 13-109 | Trans. prob., Oscill. Strengths | Th |
| | Ne Z= 35-109 | Trans. prob., Oscill. Strengths | Th |
| 546. | L.-H. Hao, G. Jiang
Energy levels, transition rates, and line strengths of B-like ions
Phys. Rev. A 83, 012511 (2011) | | |
| | Al⁸⁺ | Trans. prob., Oscill. Strengths | Th |
| | Mn²⁰⁺ | Trans. prob., Oscill. Strengths | Th |
| | Fe²¹⁺ | Trans. prob., Oscill. Strengths | Th |
| | Co²²⁺ | Trans. prob., Oscill. Strengths | Th |
| | Ni²³⁺ | Trans. prob., Oscill. Strengths | Th |
| | Cu²⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| | Zn²⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| | Mo³⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| | Au⁷⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| 547. | T. Nandi, A. P. Mishra, B. N. Jagatap
Observation of transitions involving core-excited states in Ar III and Ar IV and highly singly excited states in Ar I–Ar IV
J. Quant. Spectrosc. Radiat. Transfer 80, 2771-2778 (2011) | | |

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|------|---|---------------------------------|-----|
| | Ar²⁺ | Trans. prob., Oscill. Strengths | Exp |
| 548. | R. Kumar, S. N. Tiwary, R. P. K. Ray | | |
| | Excitation energies and oscillator strengths for the $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 D^e \rightarrow 1s^2 2s^2 2p^6 3s^2 3p^5 3d^2 P^o$, $2D^o$, $2F^o$ transitions in V^{4+} | | |
| | Pramana 76, 471-476 (2011) | | |
| | V⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| 549. | J. P. Santos, A. M. Costa, C. Madruga, F. Parente, P. Indelicato | | |
| | Relativistic transition wavelengths and probabilities for spectral lines of Ne II | | |
| | Eur. Phys. J. D 63, 89-96 (2011) | | |
| | Ne⁺ | Trans. prob., Oscill. Strengths | Th |
| 550. | F. Hu, G. Jiang, J. M. Yang, C. K. Wang, X. F. Zhao, L. H. Hao | | |
| | Effects of valence-valence, core-valence and core-core correlations on the fine-structure energy levels in Zn-like ions | | |
| | Eur. Phys. J. D 61, 15-20 (2011) | | |
| | Yb⁴⁰⁺ | Trans. prob., Oscill. Strengths | Th |
| | W⁴⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| | Os⁴⁶⁺ | Trans. prob., Oscill. Strengths | Th |
| | Au⁴⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| | Pb⁵²⁺ | Trans. prob., Oscill. Strengths | Th |
| | Bi⁵³⁺ | Trans. prob., Oscill. Strengths | Th |
| | Th⁶⁰⁺ | Trans. prob., Oscill. Strengths | Th |
| | U⁶²⁺ | Trans. prob., Oscill. Strengths | Th |
| 551. | P. Amaro, A. Surzhykov, F. Parente, P. Indelicato, J. P. Santos | | |
| | Calculation of two-photon decay rates of hydrogen-like ions by using B-polynomials | | |
| | J. Phys. A 44, 245302 (2011) | | |
| | H | Trans. prob., Oscill. Strengths | Th |
| | Zr³⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| | U⁹¹⁺ | Trans. prob., Oscill. Strengths | Th |
| 552. | U. I. Safronova, P. G. Wilcox, A. S. Safronova | | |
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| | J. Phys. B 44, 225002 (2011) | | |
| | Ni⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| 553. | P. Quinet | | |
| | Dirac-Fock calculations of forbidden transitions within the $3p^k$ and $3d^k$ ground configurations of highly charged tungsten ions (W^{47+}-W^{61+}) | | |
| | J. Phys. B 44, 195007 (2011) | | |
| | W⁴⁷⁺⁻⁶¹⁺ | Trans. prob., Oscill. Strengths | Th |
| 554. | P. Quinet, P. Palmeri, É. Biémont | | |
| | Spectroscopic data for atomic tungsten transitions of interest in fusion plasma research | | |
| | J. Phys. B 44, 145005 (2011) | | |
| | W | Trans. prob., Oscill. Strengths | Th |
| 555. | X.-B. Ding, F. Koike, I. Murakami, D. Kato, H. A. Sakaue, C.-Z. Dong, N. Nakamura, A. Komatsu, J. Sakoda | | |
| | Ab initio multi-configuration Dirac-Fock calculation of M1 visible transitions among the ground state multiplets of the W^{26+} ion | | |
| | J. Phys. B 44, 145004 (2011) | | |

	W²⁶⁺	Trans. prob., Oscill. Strengths	Th
556.	C. Froese Fischer Correlation effects on transition probabilities in Mo VI J. Phys. B 44, 125001 (2011)		
	Mo⁵⁺	Trans. prob., Oscill. Strengths	Th
557.	M. Gallardo, M. Raineri, J. Reyna Almandos, É. Biémont New energy levels, calculated lifetimes and transition probabilities in Xe IX J. Phys. B 44, 045001 (2011)		
	Xe⁸⁺	Trans. prob., Oscill. Strengths	Th
558.	U. I. Safronova, A. S. Safronova, P. Beiersdorfer, W. R. Johnson Excitation energies, radiative and autoionization rates, dielectronic satellite lines and dielectronic recombination rates for excited states of Ag-like W from Pd-like W J. Phys. B 44, 035005 (2011)		
	W²⁷⁺	Trans. prob., Oscill. Strengths	Th
559.	I. I. Guseinov, B. A. Mamedov Calculation of electric multipole transition radial matrix elements, oscillator strengths and Einstein coefficients over nonrelativistic radial wave function using Slater type orbitals Astroparticle Phys. 35, 649-651 (2011)		
	H Z= 1-10	Trans. prob., Oscill. Strengths	Th
560.	F. Hu, G. Jiang, J.-M. Yang, C.-K. Wang, X.-F. Zhao, H.-P. Zang Multi-configuration Dirac-Hartree-Fock (MCDHF) calculations for Zn-like sequence from Z = 48 to 54 Chin. Phys. B 20, 063103 (2011)		
	Zn Z= 48-54	Trans. prob., Oscill. Strengths	Th
561.	C. Cheng, X. Gao, B. Qing, X.-L. Zhang, J.-M. Li Relativistic calculations of $3s^2\ ^1S_0$-$3s3p\ ^1P_1$ and $3s^2\ ^1S_0$-$3s3p\ ^3P_{1,2}$ transition probabilities in the Mg isoelectronic sequence Chin. Phys. B 20, 033103 (2011)		
	Mg Z= 12-16	Trans. prob., Oscill. Strengths	Th
562.	K. Bartschat, O. Zatsarinny Benchmark calculations of atomic data for plasma and lighting applications Plasma Sources Sci. Technol. 20, 024012 (2011)		
	Xe	Trans. prob., Oscill. Strengths	Th
563.	E. Träbert, M. Grieser, J. Hoffmann, C. Krantz, S. Reinhardt, R. Repnow, A. Wolf, P. Indelicato M1, M2 and hyperfine-induced decay rates in Mg-like ions of Co, Ni and Cu measured at a heavy-ion storage ring New J. Phys. 13, 023017 (2011)		
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	Co¹⁵⁺	Trans. prob., Oscill. Strengths	E/T
	Ni¹⁶⁺	Trans. prob., Oscill. Strengths	E/T
	Cu¹⁷⁺	Trans. prob., Oscill. Strengths	E/T

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| O Z= 20-30 | Trans. prob., Oscill. Strengths | Th |
| O | Trans. prob., Oscill. Strengths | Th |
565. E. Louzon, A. Feigel, Y. Frank, E. Raicher, M. Klapisch, P. Mandelbaum, I. Levy, G. Hurvitz, Y. Ehrlich, M. Frankel, S. Maman, Z. Henis
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| Fe²³⁺ | Trans. prob., Oscill. Strengths | Th |
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566. H. G. Wei, J. R. Shi, G. Zhao, Z. T. Liang
K-Shell energy levels and radiative rates for transitions in Si XI
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| Si¹⁰⁺ | Trans. prob., Oscill. Strengths | Th |
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| Fe⁺ | Trans. prob., Oscill. Strengths | Th |
|-----------------------|---------------------------------|----|
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R-matrix electron-impact excitation data for the Ne-like iso-electronic sequence
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| Ne Z= 11-36 | Trans. prob., Oscill. Strengths | Th |
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Ionization potentials, electron affinities, resonance excitation energies, oscillator strengths, and ionic radii of element Uus (Z = 117) and astatine
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| Cl | Trans. prob., Oscill. Strengths | Th |
| Br | Trans. prob., Oscill. Strengths | Th |
| I | Trans. prob., Oscill. Strengths | Th |
| At | Trans. prob., Oscill. Strengths | Th |
| Uus | Trans. prob., Oscill. Strengths | Th |
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| Zr | Trans. prob., Oscill. Strengths | Exp |
|-----------|---------------------------------|-----|
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Energy levels, radiative rates and electron impact excitation rates for transitions in Si XII, Si XIII and Si XIV
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- N⁶⁺ Trans. prob., Oscill. Strengths Th
 O⁷⁺ Trans. prob., Oscill. Strengths Th
 F⁸⁺ Trans. prob., Oscill. Strengths Th
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 Xe⁵³⁺ Trans. prob., Oscill. Strengths Th
 U⁹¹⁺ Trans. prob., Oscill. Strengths Th
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 Yb Trans. prob., Oscill. Strengths Th
 Hg Trans. prob., Oscill. Strengths Th
 Rn Trans. prob., Oscill. Strengths Th
 Ra Trans. prob., Oscill. Strengths Th
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 Zr³⁹⁺ Trans. prob., Oscill. Strengths Th
 U⁹¹⁺ Trans. prob., Oscill. Strengths Th

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| N⁺ | Trans. prob., Oscill. Strengths | Exp |
|----------------------|---------------------------------|-----|
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| Kr⁺ | Energy Levels, Wavelengths | Exp |
|-----------------------|----------------------------|-----|
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| W⁷⁺⁻²⁷⁺ | Energy Levels, Wavelengths | E/T |
|---------------------------|----------------------------|-----|
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Laboratory Calibration of Density-Dependent Lines in the Extreme Ultraviolet Spectral Region
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| Fe²¹⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
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|----------------------------|----------------------------|-----|
| W¹⁹⁺⁻³³⁺ | Energy Levels, Wavelengths | Exp |
| W²³⁺⁻³⁰⁺ | Energy Levels, Wavelengths | Exp |
| W²⁶⁺ | Energy Levels, Wavelengths | Exp |
| W⁴¹⁺⁻⁴⁵⁺ | Energy Levels, Wavelengths | Exp |
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Magnetic-Dipole Transitions in Tungsten and Other Heavy Elements Observed with the NIST EBIT
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|-------------------------|----------------------------|-----|
| K Z= 72-74 | Energy Levels, Wavelengths | E/T |
| Co Z= 72-74 | Energy Levels, Wavelengths | E/T |
| Au⁵²⁺ | Energy Levels, Wavelengths | E/T |
| Au⁶⁰⁺ | Energy Levels, Wavelengths | E/T |
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|------------------|----------------------------|----|
| Li Z= 3-8 | Energy Levels, Wavelengths | Th |
|------------------|----------------------------|----|
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Electron-Ion Recombination of Mg⁶⁺ Forming Mg⁵⁺ and of Mg⁷⁺ Forming Mg⁶⁺: Laboratory Measurements and Theoretical Calculations
 Astrophys. J. 758, 40 (2012)

	Mg⁶⁺⁻⁷⁺	Energy Levels, Wavelengths	Exp
588.	P. R. Young O VI Recombination Lines in Ultraviolet and Visible Spectra of RR Telescopii Astrophys. J. 749, 1 (2012)		
	O⁵⁺	Energy Levels, Wavelengths	Exp
589.	X.-Y. Shi, H. Huang, B. Jacobson, Y.-C. Chang, Q.-Z. Yin, C. Y. Ng A High-Resolution Photoionization and Photoelectron Study of ⁵⁸Ni Using A Vacuum Ultraviolet Laser Astrophys. J. 747, 20 (2012)		
	Ni	Energy Levels, Wavelengths	Exp
590.	P. Beiersdorfer, F. Diaz, Y. Ishikawa Theoretical Wavelengths of Fe XVI L-Shell Transitions and Comparison with Laboratory Measurements and Chandra Observations of Capella Astrophys. J. 745, 167 (2012)		
	Fe¹⁵⁺	Energy Levels, Wavelengths	E/T
591.	G. Del Zanna, P. J. Storey, N. R. Badnell, H. E. Mason Atomic Data for Astrophysics: Fe XII Soft X-ray Lines Astron. Astrophys. 543, A139 (2012)		
	Fe¹¹⁺	Energy Levels, Wavelengths	Th
592.	G. Del Zanna, P. J. Storey Atomic Data for Astrophysics: Fe XIII Soft X-ray Lines Astron. Astrophys. 543, A144 (2012)		
	Fe¹²⁺	Energy Levels, Wavelengths	Th
593.	S. S. Tayal Breit-Pauli Oscillator Strengths and Electron Excitation Collision Strengths for Si VIII Astron. Astrophys. 541, A61 (2012)		
	Si⁷⁺	Energy Levels, Wavelengths	Th
594.	G. Del Zanna, P. J. Storey, N. R. Badnell, H. E. Mason Atomic Data for Astrophysics: Fe X Soft X-ray Lines Astron. Astrophys. 541, A90 (2012)		
	Fe⁹⁺	Energy Levels, Wavelengths	E/T
595.	G. Del Zanna Benchmarking Atomic Data for the CHIANTI Atomic Database: Coronal Lines Observed by Hinode EIS Astron. Astrophys. 537, A38 (2012)		
	O⁴⁺⁻⁵⁺	Energy Levels, Wavelengths	Exp
	Na⁹⁺	Energy Levels, Wavelengths	Exp
	Mg⁵⁺⁻⁶⁺	Energy Levels, Wavelengths	Exp
	Mg⁹⁺	Energy Levels, Wavelengths	Exp
	Al⁸⁺	Energy Levels, Wavelengths	Exp
	Si⁶⁺⁻⁹⁺	Energy Levels, Wavelengths	Exp
	S⁹⁺⁻¹²⁺	Energy Levels, Wavelengths	Exp
	Ar¹⁰⁺	Energy Levels, Wavelengths	Exp
	Ar¹³⁺	Energy Levels, Wavelengths	Exp
	Ca¹³⁺⁻¹⁴⁺	Energy Levels, Wavelengths	Exp

Cr ⁷⁺	Energy Levels, Wavelengths	Exp
Mn ^{7+–8+}	Energy Levels, Wavelengths	Exp
Mn ¹⁴⁺	Energy Levels, Wavelengths	Exp
Fe ^{6+–15+}	Energy Levels, Wavelengths	Exp
Ni ^{9+–10+}	Energy Levels, Wavelengths	Exp
Ni ¹²⁺	Energy Levels, Wavelengths	Exp
Ni ^{14+–16+}	Energy Levels, Wavelengths	Exp
596. B. O'Dwyer, G. Del Zanna, N. R. Badnell, H. E. Mason, P. J. Storey Atomic Data for the X-ray Lines of Fe VIII and Fe IX Astron. Astrophys. 537, A22 (2012)		
Fe ^{7+–8+}	Energy Levels, Wavelengths	E/T
597. C. E. Hudson, P. H. Norrington, C. A. Ramsbottom, M. P. Scott Dirac R-Matrix Collision Strengths and Effective Collision Strengths for Transitions of Ni XVII Astron. Astrophys. 537, A12 (2012)		
Ni ¹⁶⁺	Energy Levels, Wavelengths	Th
598. A. Cingöz, D. C. Yost, T. K. Allison, A. Ruehl, M. E. Fermann, I. Hartl, J. Ye Direct Frequency Comb Spectroscopy in the Extreme Ultraviolet Nature 482, 68-71 (2012)		
Ar	Energy Levels, Wavelengths	Exp
599. G. Nave Wavelengths of Fe II Lines for Studies of Time Variation of the Fine-Structure Constant Mon. Not. R. Astron. Soc. 420, 1570-1574 (2012)		
Mg ^{0+–1+}	Energy Levels, Wavelengths	Exp
Ti ⁺	Energy Levels, Wavelengths	Exp
Cr ⁺	Energy Levels, Wavelengths	Exp
Mn ⁺	Energy Levels, Wavelengths	Exp
Fe ⁺	Energy Levels, Wavelengths	Exp
Ni ⁺	Energy Levels, Wavelengths	Exp
Zn ⁺	Energy Levels, Wavelengths	Exp
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Cr ⁺	Energy Levels, Wavelengths	Exp
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Cl ²⁺	Energy Levels, Wavelengths	Th

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- | | | |
|--------------------|----------------------------|-----|
| Ho Z= 72-75 | Energy Levels, Wavelengths | E/T |
|--------------------|----------------------------|-----|
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Electron-Impact Excitation of the ³P° and ³D° Levels of a Nickel Atom
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|-----------|----------------------------|-----|
| Ni | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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- | | | |
|-------------------------|----------------------------|----|
| Os¹⁸⁺ | Energy Levels, Wavelengths | Th |
| Au²¹⁺ | Energy Levels, Wavelengths | Th |
| Bi²⁵⁺ | Energy Levels, Wavelengths | Th |
| Ra³¹⁺ | Energy Levels, Wavelengths | Th |
| U³⁴⁺ | Energy Levels, Wavelengths | Th |
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| Ti²⁰⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
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|-------------------------|----------------------------|-----|
| Ar¹⁶⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
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Nuclear Shape Effect on the g Factor of Hydrogenlike Ions
 Phys. Rev. Lett. 108, 063005 (2012)
- | | | |
|-------------------------|----------------------------|----|
| C⁵⁺ | Energy Levels, Wavelengths | Th |
| Si¹³⁺ | Energy Levels, Wavelengths | Th |
| Sr³⁷⁺ | Energy Levels, Wavelengths | Th |
| Nd⁵⁹⁺ | Energy Levels, Wavelengths | Th |
| Sm⁶¹⁺ | Energy Levels, Wavelengths | Th |
| U⁹¹⁺ | Energy Levels, Wavelengths | Th |
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Calculation and Evaluation of Energy Levels and Radiative Rates for 2s²2p⁶-2s2p⁶np and 2s²2p⁶-2s²2p⁵nd (4 ≤ n ≤ 20) Transitions in Cu XX
 At. Data Nucl. Data Tables 98, 894-909 (2012)
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|-------------------------|----------------------------|----|
| Cu¹⁹⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
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Atomic Data and Spectral Line Intensities for Ni XV
 At. Data Nucl. Data Tables 98, 862-893 (2012)

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|------|--|----------------------------|----|
| | Ni¹⁴⁺ | Energy Levels, Wavelengths | Th |
| 620. | K. Wang, J. Yan, M. Huang, C. Y. Li, J. L. Zeng, C. Y. Chen, Y. S. Wang, Y. M. Zou
Electron Impact Excitation Rate Coefficients for P-like Ni XIV
At. Data Nucl. Data Tables 98, 779-797 (2012) | | |
| | Ni¹³⁺ | Energy Levels, Wavelengths | Th |
| 621. | A. Abou El-Maaref, M. A. M. Uosif, S. H. Allam, Th. M. El-Sherbini
Energy Levels, Oscillator Strengths and Transition Probabilities for Si-like P II, S III, Cl IV, Ar V and K VI
At. Data Nucl. Data Tables 98, 589-615 (2012) | | |
| | Si Z= 15-19 | Energy Levels, Wavelengths | Th |
| 622. | P. Bogdanovich, R. Kisielius
Theoretical Energy Level Spectra and Transition Data for 4p⁶4d, 4p⁶4f and 4p⁵4d² Configurations of W³⁷⁺ Ion
At. Data Nucl. Data Tables 98, 557-565 (2012) | | |
| | W³⁷⁺ | Energy Levels, Wavelengths | Th |
| 623. | P. Rynkun, P. Jönsson, G. Gaigalas, C. Froese Fischer
Energies and E1, M1, E2, M2 Transition Rates for States of the 2s²2p, 2s2p², and 2p³ Configurations in Boron-like Ions Between N III and Zn XXVI
At. Data Nucl. Data Tables 98, 481-556 (2012) | | |
| | B Z= 7-30 | Energy Levels, Wavelengths | Th |
| 624. | G. Gaigalas, P. Rynkun, A. Alkauskas, Z. R. Rudzikas
The Energy Levels and Radiative Transition Probabilities for Electric Quadrupole and Magnetic Dipole Transitions Among the Levels of the Ground Configuration, [Kr]4d¹⁰4f⁴, of W²⁴⁺
At. Data Nucl. Data Tables 98, 391-436 (2012) | | |
| | W²⁴⁺ | Energy Levels, Wavelengths | Th |
| 625. | O. Nagy, F. El Sayed
Energies, Wavelengths, and Transition Probabilities for Ge-like Kr, Mo, Sn, and Xe Ions
At. Data Nucl. Data Tables 98, 373-390 (2012) | | |
| | Kr⁴⁺ | Energy Levels, Wavelengths | Th |
| | Mo¹⁰⁺ | Energy Levels, Wavelengths | Th |
| | Sn¹⁸⁺ | Energy Levels, Wavelengths | Th |
| | Xe²²⁺ | Energy Levels, Wavelengths | Th |
| 626. | V. Jonauskas, G. Gaigalas, S. Kučas
Relativistic Calculations for M1-Type Transitions in 4d^N Configurations of W^{29+–37+} Ions
At. Data Nucl. Data Tables 98, 19-42 (2012) | | |
| | W^{29+–37+} | Energy Levels, Wavelengths | Th |
| 627. | J. Singh, S. Aggarwal, A. K. Singh, M. Mohan
Breit-Pauli Atomic Structure Calculations for Sulphur-like Titanium
Can. J. Phys. 90, 833-847 (2012) | | |
| | Ti⁶⁺ | Energy Levels, Wavelengths | Th |

628. H. Watanabe, N. Nakamura, D. Kato, H. A. Sakaue, S. Ohtani
Lines from Highly Charged Tungsten Ions Observed in the Visible Region Between 340 and 400 nm
 Can. J. Phys. 90, 497-501 (2012)
- | | | |
|-----------------------------|----------------------------|-----|
| W ²⁶⁺ | Energy Levels, Wavelengths | Exp |
| W ²⁶⁺⁻³³⁺ | Energy Levels, Wavelengths | Exp |
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Experimental and Theoretical Study of the Ground-State M1 Transition in Ag-like Tungsten
 Phys. Rev. A 86, 062501 (2012)
- | | | |
|-------------------------|----------------------------|-----|
| W ²⁷⁺ | Energy Levels, Wavelengths | E/T |
|-------------------------|----------------------------|-----|
630. K. M. Aggarwal, F. P. Keenan
Energy Levels, Radiative Rates and Electron Impact Excitation Rates for Transitions in Be-like Ti XIX
 Phys. Scr. 86, 055301 (2012)
- | | | |
|--------------------------|----------------------------|----|
| Ti ¹⁸⁺ | Energy Levels, Wavelengths | Th |
|--------------------------|----------------------------|----|
631. V. A. Dzuba, A. Derevianko, V. V. Flambaum
High-Precision Atomic Clocks with Highly Charged Ions: Nuclear-Spin-Zero f¹²-Shell Ions
 Phys. Rev. A 86, 054501 (2012)
- | | | |
|--------------------------|----------------------------|----|
| Hf ¹²⁺ | Energy Levels, Wavelengths | Th |
| W ¹⁴⁺ | Energy Levels, Wavelengths | Th |
| Os ¹⁸⁺ | Energy Levels, Wavelengths | Th |
| Pt ²⁰⁺ | Energy Levels, Wavelengths | Th |
| Hg ²²⁺ | Energy Levels, Wavelengths | Th |
| Pb ²⁴⁺ | Energy Levels, Wavelengths | Th |
| Po ²⁶⁺ | Energy Levels, Wavelengths | Th |
| Ra ³⁰⁺ | Energy Levels, Wavelengths | Th |
| Th ³²⁺ | Energy Levels, Wavelengths | Th |
| U ³⁴⁺ | Energy Levels, Wavelengths | Th |
632. J. P. Marques, F. Parente, A. M. Costa, M. C. Martins, P. Indelicato, J. P. Santos
Decay of the 1s²2s3p ³P₀ Level in Be-like Ions
 Phys. Rev. A 86, 052521 (2012)
- | | | |
|---------------------------|----------------------------|----|
| Be Z= 5-12 | Energy Levels, Wavelengths | Th |
| Be Z= 14-34 step 2 | Energy Levels, Wavelengths | Th |
| Be Z= 46-56 step 2 | Energy Levels, Wavelengths | Th |
| Be Z= 70-90 step 4 | Energy Levels, Wavelengths | Th |
| Mo ³⁸⁺ | Energy Levels, Wavelengths | Th |
| Sm ⁵⁸⁺ | Energy Levels, Wavelengths | Th |
| U ⁸⁸⁺ | Energy Levels, Wavelengths | Th |
633. V. A. Yerokhin, A. Surzhykov
Relativistic Configuration-Interaction Calculation of Energy Levels of Core-Excited States in Lithiumlike Ions: Argon through Krypton
 Phys. Rev. A 86, 042507 (2012)
- | | | |
|--------------------|----------------------------|----|
| Li Z= 18-36 | Energy Levels, Wavelengths | Th |
|--------------------|----------------------------|----|
634. K. M. Aggarwal, F. P. Keenan
Energy Levels, Radiative Rates and Electron Impact Excitation Rates for Transitions in He-like Kr XXXV
 Phys. Scr. 86, 035302 (2012)

Kr³⁴⁺ Energy Levels, Wavelengths Th

635. J.-G. Li, C. Nazé, M. Godefroid, St. Fritzsche, G. Gaigalas, P. Indelicato, P. Jönsson
Mass- and Field-Shift Isotope Parameters for the 2s-2p Resonance Doublet of Lithiumlike Ions
 Phys. Rev. A 86, 022518 (2012)

Li Z= 4-55	Energy Levels, Wavelengths	Th
Nd⁵⁷⁺	Energy Levels, Wavelengths	Th
Yb⁶⁷⁺	Energy Levels, Wavelengths	Th
Hg⁷⁷⁺	Energy Levels, Wavelengths	Th
Bi⁸⁰⁺	Energy Levels, Wavelengths	Th
Fr⁸⁴⁺	Energy Levels, Wavelengths	Th
Th⁸⁷⁺	Energy Levels, Wavelengths	Th

636. J. C. Berengut, V. A. Dzuba, V. V. Flambaum, A. Ong
Highly Charged Ions with E1, M1, and E2 Transitions within Laser Range
 Phys. Rev. A 86, 022517 (2012)

Ag Z= 60-61	Energy Levels, Wavelengths	Th
In Z= 57-90	Energy Levels, Wavelengths	Th
Sn Z= 58-60	Energy Levels, Wavelengths	Th
Sn Z= 60-63	Energy Levels, Wavelengths	Th
Sb Z= 59-61	Energy Levels, Wavelengths	Th
Sb Z= 61-64	Energy Levels, Wavelengths	Th
Xe Z= 62-65	Energy Levels, Wavelengths	Th
Tl Z= 90-100	Energy Levels, Wavelengths	Th
Pb Z= 95-100	Energy Levels, Wavelengths	Th
Bi Z= 96-99	Energy Levels, Wavelengths	Th
Bi Z= 96-100	Energy Levels, Wavelengths	Th
Po Z= 96-99	Energy Levels, Wavelengths	Th
At Z= 96-100	Energy Levels, Wavelengths	Th
Rn Z= 97-100	Energy Levels, Wavelengths	Th
Fr Z= 97-101	Energy Levels, Wavelengths	Th
Cs Z= 62-65	Energy Levels, Wavelengths	Th
I Z= 61-64	Energy Levels, Wavelengths	Th
Te Z= 61-64	Energy Levels, Wavelengths	Th
Cd Z= 60-61	Energy Levels, Wavelengths	Th
Eu¹⁴⁺⁻¹⁵⁺	Energy Levels, Wavelengths	Th
W⁵⁺	Energy Levels, Wavelengths	Th
W¹¹⁺	Energy Levels, Wavelengths	Th
W¹³⁺	Energy Levels, Wavelengths	Th
W²⁷⁺	Energy Levels, Wavelengths	Th
W⁴⁵⁺	Energy Levels, Wavelengths	Th
W⁶⁵⁺	Energy Levels, Wavelengths	Th
W⁷³⁺	Energy Levels, Wavelengths	Th
U⁹⁺	Energy Levels, Wavelengths	Th

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Fine-Structure Energy Levels, Radiative Rates and Lifetimes in Si-like Nickel
 Phys. Scr. 86, 015303 (2012)

Ni¹⁴⁺ Energy Levels, Wavelengths Th

638. S. Bouazza
Full Hyperfine Structure Study of Singly Ionized Tantalum
 Phys. Scr. 86, 015302 (2012)

Ta⁺ Energy Levels, Wavelengths E/T

639. P. Beiersdorfer, J. K. Lepson, M. B. Schneider, M. P. Bode
L-Shell X-ray Emission from Neonlike W⁶⁴⁺
 Phys. Rev. A 86, 012509 (2012)
- | | | |
|----------------------------|----------------------------|-----|
| W⁶²⁺⁻⁶⁶⁺ | Energy Levels, Wavelengths | E/T |
|----------------------------|----------------------------|-----|
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Doubly Excited Non-Autoionizing ^{1,3}P^e and ^{1,3}D^o States of Two-Electron Highly Stripped Atoms
 Phys. Scr. 85, 065304 (2012)
- | | | |
|-------------------|----------------------------|----|
| He Z= 7-12 | Energy Levels, Wavelengths | Th |
|-------------------|----------------------------|----|
641. K. M. Aggarwal, F. P. Keenan
Energy Levels, Radiative Rates and Electron Impact Excitation Rates for Transitions in He-like Ti XXI, V XXII, Cr XXIII and Mn XXIV
 Phys. Scr. 85, 065301 (2012)
- | | | |
|-------------------------|----------------------------|----|
| Ti²⁰⁺ | Energy Levels, Wavelengths | Th |
| V²¹⁺ | Energy Levels, Wavelengths | Th |
| Cr²²⁺ | Energy Levels, Wavelengths | Th |
| Mn²³⁺ | Energy Levels, Wavelengths | Th |
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Calculation of Quadrupole Polarizabilities with Combined Configuration Interaction and Coupled-Cluster Method
 Phys. Rev. A 85, 062517 (2012)
- | | | |
|------------------------|----------------------------|----|
| Mg | Energy Levels, Wavelengths | Th |
| Si²⁺ | Energy Levels, Wavelengths | Th |
643. R. D'Arcy, O. Morris, B. Li, H. Ohashi, S. Suda, H. Tanuma, S. Fujioka, H. Nishimura, K. Nishihara, C. Suzuki, T. Kato, F. Koike, G. O'Sullivan
EUV Spectra of Xe XVII–Xe XXI Produced in Charge-Exchange Collisions
 Phys. Rev. A 85, 062513 (2012)
- | | | |
|-----------------------------|----------------------------|-----|
| Xe¹⁶⁺⁻¹⁷⁺ | Energy Levels, Wavelengths | E/T |
| Xe¹⁶⁺⁻²⁰⁺ | Energy Levels, Wavelengths | E/T |
| Xe¹⁸⁺⁻²⁰⁺ | Energy Levels, Wavelengths | E/T |
644. M. S. Safronova, S. G. Porsev, M. G. Kozlov, C. W. Clark
Polarizabilities of Si²⁺: A Benchmark Test of Theory and Experiment
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|------------------------|----------------------------|----|
| Si²⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|
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Unidentified Transitions in One-Photon Intrashell Dynamics in Rydberg Atoms
 Phys. Rev. A 85, 043416 (2012)
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|-----------|----------------------------|-----|
| Li | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
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Multiconfiguration Dirac-Hartree-Fock Energy Levels and Transition Probabilities for W XXXVIII
 Phys. Rev. A 85, 042501 (2012)
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|------------------------|----------------------------|----|
| W³⁷⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|

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Characterization of Anomalous Zeeman Patterns in Complex Atomic Spectra
 Phys. Rev. A 85, 033409 (2012)
- | | | |
|------------------------|----------------------------|----|
| C⁴⁺ | Energy Levels, Wavelengths | Th |
| Fe⁶⁺ | Energy Levels, Wavelengths | Th |
648. S. B. Zhang, D. L. Yeager
Complex-Scaled Multireference Configuration-Interaction Method to Study Be and Be-like cations' (B, C, N, O, Mg) Auger Resonances 1s2s²2p^{1,3}P^o
 Phys. Rev. A 85, 032515 (2012)
- | | | |
|------------------------|----------------------------|----|
| Be Z= 4-8 | Energy Levels, Wavelengths | Th |
| Mg⁸⁺ | Energy Levels, Wavelengths | Th |
649. U. I. Safronova, A. S. Safronova
Dielectronic Recombination of Er-like Tungsten
 Phys. Rev. A 85, 032507 (2012)
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|-----------------------|----------------------------|----|
| W⁵⁺ | Energy Levels, Wavelengths | Th |
|-----------------------|----------------------------|----|
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Formation of Kr³⁺ via Core-Valence Doubly Ionized Intermediate States
 Phys. Rev. A 85, 032502 (2012)
- | | | |
|---------------------------|----------------------------|-----|
| Kr²⁺⁻³⁺ | Energy Levels, Wavelengths | Exp |
|---------------------------|----------------------------|-----|
651. K. M. Aggarwal, F. P. Keenan
Energy Levels, Radiative Rates and Electron Impact Excitation Rates for Transitions in He-like Cl XVI, K XVIII, Ca XIX and Sc XX
 Phys. Scr. 85, 025306 (2012)
- | | | |
|-------------------------|----------------------------|----|
| Cl¹⁵⁺ | Energy Levels, Wavelengths | Th |
| K¹⁷⁺ | Energy Levels, Wavelengths | Th |
| Ca¹⁸⁺ | Energy Levels, Wavelengths | Th |
| Sc¹⁹⁺ | Energy Levels, Wavelengths | Th |
652. K. M. Aggarwal, F. P. Keenan
Energy Levels, Radiative Rates and Electron Impact Excitation Rates for Transitions in He-like Mg XI, Al XII, P XIV and S XV
 Phys. Scr. 85, 025305 (2012)
- | | | |
|-------------------------|----------------------------|----|
| Mg¹⁰⁺ | Energy Levels, Wavelengths | Th |
| Al¹¹⁺ | Energy Levels, Wavelengths | Th |
| P¹³⁺ | Energy Levels, Wavelengths | Th |
| S¹⁴⁺ | Energy Levels, Wavelengths | Th |
653. A. Kramida, C. M. Brown, U. Feldman, J. Reader
Extension and New Level Optimization of the Ne IV Spectrum
 Phys. Scr. 85, 025303 (2012)
- | | | |
|---------------------------|----------------------------|-----|
| Ne²⁺⁻⁴⁺ | Energy Levels, Wavelengths | E/T |
| Ne³⁺ | Energy Levels, Wavelengths | E/T |
654. V. Gedeon, S. Gedeon, V. Lazur, E. Nagy, O. Zatsarinny, K. Bartschat
Electron Scattering from Silicon
 Phys. Rev. A 85, 022711 (2012)
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|-----------|----------------------------|----|
| Si | Energy Levels, Wavelengths | Th |
|-----------|----------------------------|----|

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Rest-Wavelength Fiducials for the ITER Core Imaging X-ray Spectrometer
 Rev. Sci. Instrum. 83, 10E111 (2012)

W⁶⁴⁺ Energy Levels, Wavelengths Exp

656. Yu. B. Malykhanov, S. V. Evseev, M. V. Gorshunov
Calculation of Open p-Shell Atoms in the Algebraic Approach of the Hartree-Fock Method
 J. Appl. Spectrosc. 79, 1-10 (2012)

B-F Energy Levels, Wavelengths Th
Al-Cl Energy Levels, Wavelengths Th
Ga-Br Energy Levels, Wavelengths Th
In-I Energy Levels, Wavelengths Th
Tl-At Energy Levels, Wavelengths Th

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Relativistic Configuration Interaction Calculations on K α X-ray Satellites of Magnesium Ions
 Eur. Phys. J. D 66, 146 (2012)

Mg²⁺⁻¹⁰⁺ Energy Levels, Wavelengths Th

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Fine-Structure Splitting Calculation in the Ar III Ion: Comparison of Perturbative (Breit-Pauli) and Non-Perturbative (MCDF-EAL) Predictions
 Eur. Phys. J. D 66, 84 (2012)

Ar²⁺ Energy Levels, Wavelengths Th

659. B. Schabinger, S. Sturm, A. Wagner, J. Alonso, W. Quint, G. Werth, K. Blaum
Experimental g Factor of Hydrogenlike Silicon-28
 Eur. Phys. J. D 66, 71 (2012)

Si¹³⁺ Energy Levels, Wavelengths Exp

660. J. K. Saha, T. K. Mukherjee, P. K. Mukherjee, B. Fricke
Effect of Strongly Coupled Plasma on the Doubly Excited States of Heliumlike Ions
 Eur. Phys. J. D 66, 43 (2012)

C⁴⁺ Energy Levels, Wavelengths Th
Al¹¹⁺ Energy Levels, Wavelengths Th
Si¹²⁺ Energy Levels, Wavelengths Th
P¹³⁺ Energy Levels, Wavelengths Th
S¹⁴⁺ Energy Levels, Wavelengths Th
Cl¹⁵⁺ Energy Levels, Wavelengths Th

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On Relativistic Shifts of Negative-Ion Resonances
 Eur. Phys. J. D 66, 7 (2012)

Xe⁻ Energy Levels, Wavelengths Th
Ce⁻ Energy Levels, Wavelengths Th

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The Effect of Relativity on the Structures and Transition Properties of Li-like Ions
 Acta Phys. Sin. 61, 093106 (2012)

- | | | |
|-------------------------|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
| Be⁺ | Energy Levels, Wavelengths | Th |
| C³⁺ | Energy Levels, Wavelengths | Th |
| O⁵⁺ | Energy Levels, Wavelengths | Th |
| Ne⁷⁺ | Energy Levels, Wavelengths | Th |
| Ar¹⁵⁺ | Energy Levels, Wavelengths | Th |
| Fe²³⁺ | Energy Levels, Wavelengths | Th |
| Mo³⁹⁺ | Energy Levels, Wavelengths | Th |
| W⁷¹⁺ | Energy Levels, Wavelengths | Th |
| U⁸⁹⁺ | Energy Levels, Wavelengths | Th |
663. X.-M. Li, Y.-P. Ruan, Z.-P. Zhong
Theoretical Study of the Rydberg Series Energy Levels of $ns^2S_{1/2}$, $np^2P_{1/2,3/2}$, $nd^2D_{3/2,5/2}$ and $nf^2F_{5/2,7/2}$ for Alkali-Metal Li, Na, K, Rb, Cs and Fr
Acta Phys. Sin. 61-2, 023104 (2012)
- | | | |
|-----------|----------------------------|----|
| Li | Energy Levels, Wavelengths | Th |
| Na | Energy Levels, Wavelengths | Th |
| K | Energy Levels, Wavelengths | Th |
| Rb | Energy Levels, Wavelengths | Th |
| Cs | Energy Levels, Wavelengths | Th |
| Fr | Energy Levels, Wavelengths | Th |
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The Nonlocal Thermal Equilibrium Simulation of Z-Pinch Al Plasma Radiation
Acta Phys. Sin. 61-1, 015201 (2012)
- | | | |
|-----------------------------|----------------------------|----|
| Al¹⁰⁺⁻¹²⁺ | Energy Levels, Wavelengths | Th |
|-----------------------------|----------------------------|----|
665. E. V. Koryukina, V. I. Koryukin
A Theoretical Study of the Dynamic Stark Effect for a Ne⁺ Ion Under Laser Excitation
Russ. Phys. J. 55, 229-235 (2012)
- | | | |
|-----------------------|----------------------------|----|
| Ne⁺ | Energy Levels, Wavelengths | Th |
|-----------------------|----------------------------|----|
666. D. Osin, J. Reader, J. D. Gillaspay, Yu. Ralchenko
Extreme Ultraviolet Spectra of Highly Charged Xenon Observed with an Electron Beam Ion Trap
J. Phys. B 45, 245001 (2012)
- | | | |
|-----------------------------|----------------------------|-----|
| Xe²⁶⁺ | Energy Levels, Wavelengths | Exp |
| Xe²⁶⁺⁻⁴³⁺ | Energy Levels, Wavelengths | Exp |
| Xe³⁰⁺⁻⁴¹⁺ | Energy Levels, Wavelengths | Exp |
| Xe⁴³⁺ | Energy Levels, Wavelengths | Exp |
667. T. Osawa, K. Kawajiri, N. Suzuki, T. Nagata, Y. Azuma, F. Koike
Photoion-Yield Study of the 3p-3d Giant Resonance Excitation Region of Isolated Cr, Mn and Fe Atoms
J. Phys. B 45, 225204 (2012)
- | | | |
|-----------|----------------------------|-----|
| Cr | Energy Levels, Wavelengths | Exp |
| Mn | Energy Levels, Wavelengths | Exp |
| Fe | Energy Levels, Wavelengths | Exp |
668. D.-S. Kim, D.-H. Kwon
Photoionization of Be-like N³⁺ and Ne⁶⁺ Ions: Features of Be Isoelectronic Sequences of Z ≤ 10
J. Phys. B 45, 185201 (2012)
- | | | |
|------------------------|----------------------------|----|
| N³⁺ | Energy Levels, Wavelengths | Th |
| Ne⁶⁺ | Energy Levels, Wavelengths | Th |

669. U. I. Safronova, A. S. Safronova
Correlation and Relativistic Effects within the Trivalent Lu-like Sequence
 J. Phys. B 45, 185002 (2012)
- | | | |
|---------------------|----------------------------|----|
| Lu Z= 74-100 | Energy Levels, Wavelengths | Th |
|---------------------|----------------------------|----|
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Theoretical Study for the Electron Affinities of Negative Ions with the MCDHF Method
 J. Phys. B 45, 165004 (2012)
- | | | |
|-----------------------|----------------------------|----|
| B⁻ | Energy Levels, Wavelengths | Th |
| C⁻ | Energy Levels, Wavelengths | Th |
| N⁻ | Energy Levels, Wavelengths | Th |
| O⁻ | Energy Levels, Wavelengths | Th |
| F⁻ | Energy Levels, Wavelengths | Th |
| Al⁻ | Energy Levels, Wavelengths | Th |
| Si⁻ | Energy Levels, Wavelengths | Th |
| P⁻ | Energy Levels, Wavelengths | Th |
| S⁻ | Energy Levels, Wavelengths | Th |
| Cl⁻ | Energy Levels, Wavelengths | Th |
| Ga⁻ | Energy Levels, Wavelengths | Th |
| Ge⁻ | Energy Levels, Wavelengths | Th |
| As⁻ | Energy Levels, Wavelengths | Th |
| Se⁻ | Energy Levels, Wavelengths | Th |
| Br⁻ | Energy Levels, Wavelengths | Th |
| In⁻ | Energy Levels, Wavelengths | Th |
| Sn⁻ | Energy Levels, Wavelengths | Th |
| Te⁻ | Energy Levels, Wavelengths | Th |
| I⁻ | Energy Levels, Wavelengths | Th |
| Tl⁻ | Energy Levels, Wavelengths | Th |
| Pb⁻ | Energy Levels, Wavelengths | Th |
| Po⁻ | Energy Levels, Wavelengths | Th |
| At⁻ | Energy Levels, Wavelengths | Th |
671. M. Andersson, T. Lennartsson, H. Nilsson, C.-Y. Chen
The Anomalous Hyperfine Structure of Al II
 J. Phys. B 45, 135001 (2012)
- | | | |
|-----------------------|----------------------------|-----|
| Al⁺ | Energy Levels, Wavelengths | E/T |
|-----------------------|----------------------------|-----|
672. D. Veza, C. J. Sansonetti, M. L. Salit, J. C. Travis
Wave Numbers and Pressure-Induced Shifts of Ar I Atomic Lines Measured by Fourier Transform Spectroscopy
 J. Phys. B 45, 115001 (2012)
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|-----------|----------------------------|-----|
| Ar | Energy Levels, Wavelengths | Exp |
|-----------|----------------------------|-----|
673. B. M. McLaughlin, C. P. Ballance
Photoionization Cross Section Calculations for the Halogen-like Ions Kr⁺ and Xe⁺
 J. Phys. B 45, 085701 (2012)
- | | | |
|-----------------------|----------------------------|----|
| Kr⁺ | Energy Levels, Wavelengths | Th |
| Xe⁺ | Energy Levels, Wavelengths | Th |
674. U. I. Safronova, A. S. Safronova, P. Beiersdorfer
Excitation Energies, Radiative and Autoionization Rates, Dielectronic Satellite Lines, and Dielectronic Recombination Rates for Excited States of Yb-like W
 J. Phys. B 45, 085001 (2012)

- | | | | |
|--|--------------------------|----------------------------|----|
| | W⁴⁺ | Energy Levels, Wavelengths | Th |
| | W⁴⁺⁻⁵⁺ | Energy Levels, Wavelengths | Th |
675. J. D. Hey
On the Role of Atomic Metastability in the Production of Balmer Line Radiation from 'cold' Atomic Hydrogen, Deuterium and Hydrogenic Ion Impurities in Fusion Edge Plasmas
 J. Phys. B 45, 065701 (2012)
- | | | | |
|--|------------------|----------------------------|----|
| | H Z= 1-10 | Energy Levels, Wavelengths | Th |
|--|------------------|----------------------------|----|
676. S. Enzonga Yoca, P. Quinet, P. Palmeri, É. Biémont
Comparative Semi-Empirical and Ab Initio Atomic Structure Calculations in Yb-like Tungsten W⁴⁺
 J. Phys. B 45, 065001 (2012)
- | | | | |
|--|-----------------------|----------------------------|----|
| | W⁴⁺ | Energy Levels, Wavelengths | Th |
|--|-----------------------|----------------------------|----|
677. I. M. Savukov
CI-RMBPT Neon g-Factors
 J. Phys. B 45, 045002 (2012)
- | | | | |
|--|-----------------------|----------------------------|----|
| | Ne | Energy Levels, Wavelengths | Th |
| | Na⁺ | Energy Levels, Wavelengths | Th |
678. V. Fivet, M. A. Bautista, C. P. Ballance
Fine-Structure Photoionization Cross Sections of Fe II
 J. Phys. B 45, 035201 (2012)
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|--|-----------------------|----------------------------|----|
| | Fe⁺ | Energy Levels, Wavelengths | Th |
|--|-----------------------|----------------------------|----|
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M1 Transition Energies and Probabilities Between the Multiplets of the Ground State of Ag-like Ions with Z = 47-92
 J. Phys. B 45, 035003 (2012)
- | | | | |
|--|--------------------|----------------------------|----|
| | Ag Z= 47-92 | Energy Levels, Wavelengths | Th |
|--|--------------------|----------------------------|----|
680. P. Quinet
A Theoretical Survey of Atomic Structure and Forbidden Transitions in the 4p^k and 4d^k Ground Configurations of Tungsten Ions W²⁹⁺ through W⁴³⁺
 J. Phys. B 45, 025003 (2012)
- | | | | |
|--|----------------------------|----------------------------|----|
| | W²⁹⁺⁻⁴³⁺ | Energy Levels, Wavelengths | Th |
|--|----------------------------|----------------------------|----|
681. S. P. Zinchenko, I. G. Ivanov
Pulsed Hollow-Cathode Ion Lasers: Pumping and Lasing Parameters
 Quantum Electron. 42, 518-523 (2012)
- | | | | |
|--|-----------------------|----------------------------|-----|
| | Cu⁺ | Energy Levels, Wavelengths | Exp |
| | Zn⁺ | Energy Levels, Wavelengths | Exp |
| | Ga⁺ | Energy Levels, Wavelengths | Exp |
| | Kr⁺ | Energy Levels, Wavelengths | Exp |
| | Cd⁺ | Energy Levels, Wavelengths | Exp |
| | Hg⁺ | Energy Levels, Wavelengths | Exp |
| | Tl⁺ | Energy Levels, Wavelengths | Exp |
682. E. B. Saloman
Energy Levels and Observed Spectral Lines of Neutral and Singly Ionized Titanium, Ti I and Ti II
 J. Phys. Chem. Ref. Data 41, 013101 (2012)

	Ti⁰⁺⁻¹⁺	Energy Levels, Wavelengths	Exp
683.	S. Aggarwal, J. Singh, A. K. S. Jha, M. Mohan Photoionization Cross-Section of Chlorine-like Iron J. Astrophys. Astron. 33, 291-301 (2012)		
	Fe⁹⁺	Energy Levels, Wavelengths	Th
684.	J.-Z. Fan, D.-H. Zhang, Z.-W. Chang, Y.-L. Shi, C.-Z. Dong Energy-Crossing and Its Effect on Lifetime of the 4s²4p ²P_{3/2} Level for Highly Charged Ga-like Ions Chin. Phys. Lett. 29, 073102 (2012)		
	Ga Z= 68-79	Energy Levels, Wavelengths	Th
	Ga Z= 81-95 step 2	Energy Levels, Wavelengths	Th
685.	Z.-R. Yang, P. Yuan, Z.-Y. Song, Q.-M. Xu, Z.-H. Yang Measurements of the Spectrum of Singly Ionized Argon Between 320 and 520 nm Chin. Phys. Lett. 29, 013204 (2012)		
	Ar⁺	Energy Levels, Wavelengths	Exp
686.	D.-H. Zhang, Y.-L. Shi, J. Jiang, C.-Z. Dong, F. Koike KLL Dielectronic Recombination Process of He-like to O-like Xenon Ions Chin. Phys. B 21, 013402 (2012)		
	Xe⁴⁶⁺⁻⁵²⁺	Energy Levels, Wavelengths	Th
687.	Z.-R. Zhang, X.-L. Cheng, Z.-J. Liu, J.-H. Yang, H.-F. Li Theoretical Study on 2s2p⁶np Rydberg States of Cu¹⁹⁺ Ion Chin. Phys. B 21, 013101 (2012)		
	Cu¹⁹⁺	Energy Levels, Wavelengths	Th
688.	Madhusmita Das Transition Energies and Polarizabilities of Hydrogen like Ions in Plasma Phys. Plasmas 19, 092707 (2012)		
	H	Energy Levels, Wavelengths	Th
	C⁵⁺	Energy Levels, Wavelengths	Th
	Al¹²⁺	Energy Levels, Wavelengths	Th
	Ar¹⁷⁺	Energy Levels, Wavelengths	Th
689.	Z.-S. Jiang, S. Kar, Y. K. Ho Energies and Transition Wavelengths for Li II, Be III, B IV, C V Embedded in Debye Plasmas Phys. Plasmas 19, 033301 (2012)		
	He Z= 3-6	Energy Levels, Wavelengths	Th
690.	A. S. Safronova, V. L. Kantsyrev, A. Y. Faenov, U. I. Safronova, P. Wiewior, N. Renard-Le Gal- loudec, A. A. Esaulov, M. E. Weller, A. Stafford, P. Wilcox, I. Shrestha, N. D. Ouart, V. Shlyaptseva, G. C. Osborne, O. Chalyy, Y. Paudel Atomic Physics of Relativistic High Contrast Laser-Produced Plasmas in Experiments on Leopard Laser Facility at UNR High En. Dens. Phys. 8, 190-195 (2012)		
	F⁶⁺⁻⁸⁺	Energy Levels, Wavelengths	Exp
	Mg⁹⁺⁻¹¹⁺	Energy Levels, Wavelengths	Exp
	Fe¹⁶⁺⁻²³⁺	Energy Levels, Wavelengths	Exp
	Cu¹⁹⁺⁻²²⁺	Energy Levels, Wavelengths	Exp

691. C. A. Iglesias, V. Sonnad
Partially Resolved Transition Array Model for Atomic Spectra
 High En. Dens. Phys. 8, 154-160 (2012)
- | | | |
|----------------------------|----------------------------|----|
| Ni ⁴⁺⁻⁵⁺ | Energy Levels, Wavelengths | Th |
| Cd ²⁴⁺ | Energy Levels, Wavelengths | Th |
| Tm ⁴¹⁺ | Energy Levels, Wavelengths | Th |
692. Z.-w. Wang, Y. Guo
Theoretical Study on the 1s²2s-1s²np Transitions for Ni²⁵⁺ Ion
 Frontiers Phys. 7, 252-255 (2012)
- | | | |
|--------------------------|----------------------------|----|
| Ni ²⁵⁺ | Energy Levels, Wavelengths | Th |
|--------------------------|----------------------------|----|
693. S. S. Tayal, O. Zatsarinny
Effective Collision Strengths for Electron-Impact Excitation of Fe VIII
 Astrophys. J. 743, 206 (2011)
- | | | |
|-------------------------|----------------------------|----|
| Fe ⁷⁺ | Energy Levels, Wavelengths | Th |
|-------------------------|----------------------------|----|
694. G. Del Zanna
Benchmarking Atomic Data for Astrophysics: Fe XVII X-ray Lines
 Astron. Astrophys. 536, A59 (2011)
- | | | |
|--------------------------|----------------------------|-----|
| Fe ¹⁶⁺ | Energy Levels, Wavelengths | Exp |
|--------------------------|----------------------------|-----|
695. G. Del Zanna, V. Andretta
The EUV Spectrum of the Sun: SOHO CDS NIS Irradiances from 1998 Until 2010
 Astron. Astrophys. 528, A139 (2011)
- | | | |
|------------------------------|----------------------------|-----|
| He | Energy Levels, Wavelengths | Exp |
| C ²⁺ | Energy Levels, Wavelengths | Exp |
| N ²⁺ | Energy Levels, Wavelengths | Exp |
| O ⁺⁴⁺ | Energy Levels, Wavelengths | Exp |
| Ne ³⁺⁻⁵⁺ | Energy Levels, Wavelengths | Exp |
| Mg ⁶⁺ | Energy Levels, Wavelengths | Exp |
| Mg ⁸⁺⁻⁹⁺ | Energy Levels, Wavelengths | Exp |
| Al ⁹⁺⁻¹⁰⁺ | Energy Levels, Wavelengths | Exp |
| Si ⁷⁺ | Energy Levels, Wavelengths | Exp |
| Si ¹⁰⁺⁻¹¹⁺ | Energy Levels, Wavelengths | Exp |
| Ar ⁶⁺ | Energy Levels, Wavelengths | Exp |
| Ca ⁹⁺ | Energy Levels, Wavelengths | Exp |
| Fe ¹⁰⁺⁻¹³⁺ | Energy Levels, Wavelengths | Exp |
| Fe ¹⁵⁺ | Energy Levels, Wavelengths | Exp |
696. C. Jordan
The Emission Line Near 1319 Å in Solar and Stellar Spectra
 Mon. Not. R. Astron. Soc. 414, 634-641 (2011)
- | | | |
|------------------------|----------------------------|-----|
| Si ⁺ | Energy Levels, Wavelengths | Exp |
| P ⁺ | Energy Levels, Wavelengths | Exp |
| S | Energy Levels, Wavelengths | Exp |
697. I. R. Wasson, C. A. Ramsbottom, M. P. Scott
Electron-Impact Excitation of Cr II: A Theoretical Calculation of Effective Collision Strengths for Optically Allowed Transitions
 Astrophys. J., Suppl. Ser. 196, 24 (2011)
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|------------------------|----------------------------|----|
| Cr ⁺ | Energy Levels, Wavelengths | Th |
|------------------------|----------------------------|----|

698. M. Patanen, S. Aksela, S. Urpelainen, T. Kantia, S. Heinäsmäki, H. Aksela
Free Atom 4f Photoelectron Spectra of Au, Pb, and Bi
 J. Electron Spectrosc. Relat. Phenom. 183, 59-63 (2011)
- | | | |
|-----------|----------------------------|-----|
| Au | Energy Levels, Wavelengths | Exp |
| Pb | Energy Levels, Wavelengths | Exp |
| Bi | Energy Levels, Wavelengths | Exp |
699. Z. Geng, K. Yao, Y. Zou
Spectra Simulation of the Argon Plasma
 Phys. Scr. T144, 014029 (2011)
- | | | |
|-------------------------|----------------------------|-----|
| Ar¹⁵⁺ | Energy Levels, Wavelengths | Exp |
| Ar¹⁶⁺ | Energy Levels, Wavelengths | Exp |
700. R. D'Arcy, O. Morris, H. Ohashi, S. Suda, H. Tanuma, S. Fujioka, H. Nishimura, K. Nishihara, C. Suzuki, T. Kato, F. Koike, G. O'Sullivan
Configuration Interaction in Charge Exchange Spectra of Tin and Xenon
 Phys. Scr. T144, 014026 (2011)
- | | | |
|-----------------------------|----------------------------|-----|
| Sn¹⁴⁺⁻¹⁷⁺ | Energy Levels, Wavelengths | Exp |
| Xe¹⁶⁺⁻²⁰⁺ | Energy Levels, Wavelengths | Exp |
701. J. P. Santos, M. C. Martins, A. M. Costa, J. P. Marques, P. Indelicato, F. Parente
Production and Decay of Chlorine Ion Excited Species in an Electron Cyclotron Resonance Ion Source Plasma
 Phys. Scr. T144, 014005 (2011)
- | | | |
|-----------------------------|----------------------------|-----|
| Cl¹⁰⁺⁻¹⁵⁺ | Energy Levels, Wavelengths | E/T |
| Cl¹³⁺⁻¹⁵⁺ | Energy Levels, Wavelengths | E/T |
702. S. Bubin, L. Adamowicz
Accurate Variational Calculations of the Ground ²P^o(1s²2s²2p) and Excited ²S(1s²2s2p²) and ²P^o(1s²2s²3p) States of Singly Ionized Carbon Atom
 J. Chem. Phys. 135, 214104 (2011)
- | | | |
|----------------------|----------------------------|----|
| C⁺ | Energy Levels, Wavelengths | Th |
|----------------------|----------------------------|----|
703. K. R. Karim
Calculation of X-ray and Auger Transition Rates, Lifetimes, X-ray Wavelengths, and Fluorescence Yields of Various Ionized Silicon Atoms
 J. Quant. Spectrosc. Radiat. Transfer 112, 1026-1034 (2011)
- | | | |
|----------------------------|----------------------------|----|
| Si⁵⁺⁻¹¹⁺ | Energy Levels, Wavelengths | Th |
|----------------------------|----------------------------|----|
704. V. Mäkel, R. Klawitter, G. Brenner, J. R. Crespo López Urrutia, J. Ullrich
Laser Spectroscopy on Forbidden Transitions in Trapped Highly Charged Ar¹³⁺ Ions
 Phys. Rev. Lett. 108, 079902 (2011)
- | | | |
|-------------------------|----------------------------|-----|
| Ar¹³⁺ | Energy Levels, Wavelengths | Exp |
|-------------------------|----------------------------|-----|
705. P. Jönsson, P. Rynkun, G. Gaigalas
Energies, E1, M1, and E2 Transition Rates, Hyperfine Structures, and Landé g_J Factors for States of the 2s²2p², 2s2p³, and 2p⁴ Configurations in Carbon-like Ions Between F IV and Ni XXIII
 At. Data Nucl. Data Tables 97, 648-691 (2011)
- | | | |
|-------------------|----------------------------|-----|
| C Z= 9-17 | Energy Levels, Wavelengths | E/T |
| C Z= 9-28 | Energy Levels, Wavelengths | E/T |
| C Z= 19-28 | Energy Levels, Wavelengths | E/T |

F³⁺	Energy Levels, Wavelengths	E/T
Ne⁴⁺	Energy Levels, Wavelengths	E/T
Na⁵⁺	Energy Levels, Wavelengths	E/T
Mg⁶⁺	Energy Levels, Wavelengths	E/T
Al⁷⁺	Energy Levels, Wavelengths	E/T
Si⁸⁺	Energy Levels, Wavelengths	E/T
P⁹⁺	Energy Levels, Wavelengths	E/T
S¹⁰⁺	Energy Levels, Wavelengths	E/T
Cl¹¹⁺	Energy Levels, Wavelengths	E/T
K¹³⁺	Energy Levels, Wavelengths	E/T
Ca¹⁴⁺	Energy Levels, Wavelengths	E/T
Sc¹⁵⁺	Energy Levels, Wavelengths	E/T
Ti¹⁶⁺	Energy Levels, Wavelengths	E/T
V⁷⁺	Energy Levels, Wavelengths	E/T
Cr¹⁸⁺	Energy Levels, Wavelengths	E/T
Mn¹⁹⁺	Energy Levels, Wavelengths	E/T
Fe²⁰⁺	Energy Levels, Wavelengths	E/T
Co²¹⁺	Energy Levels, Wavelengths	E/T
Ni²²⁺	Energy Levels, Wavelengths	E/T

706. S. N. Nahar

Oscillator Strengths and Transition Probabilities for Allowed and Forbidden Transitions in Fe XIX

At. Data Nucl. Data Tables 97, 403-425 (2011)

Fe¹⁸⁺	Energy Levels, Wavelengths	Th
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707. K. M. Aggarwal, F. P. Keenan, K. D. Lawson

Electron Impact Excitation of Kr XXVIII

At. Data Nucl. Data Tables 97, 225-344 (2011)

Kr²⁷⁺	Energy Levels, Wavelengths	Th
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708. J. Singh, S. Aggarwal, A. K. S. Jha, A. K. Singh, A. Mohan

Photoionization of Al-like Si Using the R-Matrix Method

Can. J. Phys. 89, 1119-1126 (2011)

Si^{+−2+}	Energy Levels, Wavelengths	Th
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709. A. Riyaz, K. Rahimullah, A. Tauheed

The Observed and Predicted Spectrum of Neutral Chromium: Cr I

Indian J. Phys. 85, 1781-1801 (2011)

Cr	Energy Levels, Wavelengths	E/T
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710. R. Kadrekar, L. Natarajan

Radiative One- and Two-Electron Transitions into the Empty K Shell of He-like Ions

Phys. Rev. A 84, 062506 (2011)

He Z= 4-10	Energy Levels, Wavelengths	Th
He Z= 12-14	Energy Levels, Wavelengths	Th
He Z= 18-26 step 2	Energy Levels, Wavelengths	Th

711. N. M. R. Armstrong, S. D. Rosner, R. A. Holt

Measurements of Hyperfine Structure in ⁵¹V II

Phys. Scr. 84, 055301 (2011)

V⁺	Energy Levels, Wavelengths	Exp
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712. J. C. Berengut, V. A. Dzuba, V. V. Flambaum
Transitions in Zr, Hf, Ta, W, Re, Hg, Ac, and U Ions with High Sensitivity to Variation of the Fine-Structure Constant
 Phys. Rev. A 84, 054501 (2011)

Zr²⁺	Energy Levels, Wavelengths	Th
Hf²⁺	Energy Levels, Wavelengths	Th
Ta⁴⁺	Energy Levels, Wavelengths	Th
W⁶⁺	Energy Levels, Wavelengths	Th
Re⁶⁺	Energy Levels, Wavelengths	Th
Hg²⁺⁻³⁺	Energy Levels, Wavelengths	Th
Hg³⁺	Energy Levels, Wavelengths	Th
Ac⁺²⁺	Energy Levels, Wavelengths	Th
U⁵⁺	Energy Levels, Wavelengths	Th

713. V. Jonauskas, S. Kučas, R. Karazija
Auger Decay of 3p-Ionized Krypton
 Phys. Rev. A 84, 053415 (2011)

Kr⁺⁴⁺	Energy Levels, Wavelengths	E/T
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714. J. C. Berengut
Isotope Shifts and Relativistic Shifts of Cr II for the Study of α Variation in Quasar Absorption Spectra
 Phys. Rev. A 84, 052520 (2011)

Cr⁺	Energy Levels, Wavelengths	Th
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715. M. Puchalski, D. Kędziera, K. Pachucki
Lithium Electric Dipole Polarizability
 Phys. Rev. A 85, 019910 (2011)

Li	Energy Levels, Wavelengths	Th
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716. M. Das, R. K. Chaudhuri, S. Chattopadhyay, U. S. Mahapatra
Fock-Space Multireference Coupled-Cluster Calculations of the Hyperfine Structure of Isoelectronic ³³S⁻ and ^{35,37}Cl
 Phys. Rev. A 84, 042512 (2011)

³³S⁻	Energy Levels, Wavelengths	Th
S⁻	Energy Levels, Wavelengths	Th
³⁵Cl⁻	Energy Levels, Wavelengths	Th
Cl⁻	Energy Levels, Wavelengths	Th
Cl	Energy Levels, Wavelengths	Th

717. F. Hu, J.-M. Yang, C.-K. Wang, L.-F. Jing, S.-B. Chen, G. Jiang, H. Liu, L.-H. Hao
Multiconfiguration Dirac-Fock Calculations on Multi-Valence-Electron Systems: Benchmarks on Ga-like Ions
 Phys. Rev. A 84, 042506 (2011)

Ga Z= 33-41	Energy Levels, Wavelengths	Th
Ga Z= 70-92	Energy Levels, Wavelengths	Th

718. Z.-W. Wu, J. Jiang, C.-Z. Dong
Influence of Breit Interaction on the Polarization of Radiation Following Inner-Shell Electron-Impact Excitation of Highly Charged Berylliumlike Ions
 Phys. Rev. A 84, 032713 (2011)

Mo³⁸⁺	Energy Levels, Wavelengths	Th
Nd⁵⁶⁺	Energy Levels, Wavelengths	Th
Bi⁷⁹⁺	Energy Levels, Wavelengths	Th

719. S. N. Nahar, A. K. Pradhan, G.-X. Chen, W. Eissner
Highly Excited Core Resonances in Photoionization of Fe XVII: Implications for Plasma Opacities
 Phys. Rev. A 83, 053417 (2011)
- Fe¹⁶⁺** Energy Levels, Wavelengths Th
720. K. L. Sharkey, S. Bubin, L. Adamowicz
Lower Rydberg ²D States of the Lithium Atom: Finite-Nuclear-Mass Calculations with Explicitly Correlated Gaussian Functions
 Phys. Rev. A 83, 012506 (2011)
- Li** Energy Levels, Wavelengths Th
721. I. I. Guseinov, M. Erturk, E. Sahn
Use of Combined Hartree-Fock-Roothaan Theory in Evaluation of Lowest States of K [Ar]4s⁰3d¹ and Cr⁺ [Ar]4s⁰3d⁵ Isoelectronic Series Over Noninteger n-Slater Type Orbitals
 Pramana 76, 109-117 (2011)
- K Z= 19-30** Energy Levels, Wavelengths Th
V Z= 24-30 Energy Levels, Wavelengths Th
722. X. Wang, G. Jiang, L. H. Hao, L. Zhang, B. Deng
Systematic Multi-Configuration Dirac-Fock Calculations of the K α and K β X-ray Spectra of Silicon Ions
 Eur. Phys. J. D 65, 505-508 (2011)
- Si⁴⁺⁻¹²⁺** Energy Levels, Wavelengths Th
723. T. Feldker, J. Schütz, H. John, G. Birkel
Magneto-Optical Trapping of Bosonic and Fermionic Neon Isotopes and Their Mixtures: Isotope Shift of the ³P₂ \leftrightarrow ³D₃ Transition and Hyperfine Constants of the ³D₃ State of ²¹Ne
 Eur. Phys. J. D 65, 257-262 (2011)
- Ne** Energy Levels, Wavelengths Exp
724. F. Hu, J.-M. Yang, C.-K. Wang, J.-Y. Zhang, G. Jiang, Z.-H. Zhu
Influence of Electron Correlation on Au Ions
 Acta Phys. Sin. 60-10, 103104 (2011)
- Au⁴⁸⁺⁻⁵⁰⁺** Energy Levels, Wavelengths Th
Au⁶⁶⁺ Energy Levels, Wavelengths Th
Au⁶⁷⁺ Energy Levels, Wavelengths Th
Au⁶⁸⁺ Energy Levels, Wavelengths Th
Au⁷⁴⁺ Energy Levels, Wavelengths Th
Au⁷⁵⁺ Energy Levels, Wavelengths Th
Au⁷⁶⁺ Energy Levels, Wavelengths Th
725. C.-P. Sun, G.-L. Wang, X.-X. Zhou
Theoretical Calculation of Photoionization of F³⁺ and Ne⁴⁺ Ions
 Acta Phys. Sin. 60, 053202 (2011)
- F³⁺** Energy Levels, Wavelengths E/T
Ne⁴⁺ Energy Levels, Wavelengths E/T
726. M. A. Bari, M. Salahuddin, B. Duan, M. H. Nasim, S. A. Hussain
Calculation of Energy Levels, Transition Rates, Oscillator Strengths and Lifetimes in Ne-like Au
 J. Phys. B 44, 225004 (2011)

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|--|----------------------------|-----|
| Au⁶⁹⁺ | Energy Levels, Wavelengths | Th |
| 727. N. Miyauchi, J. Adachi, A. Yagishita, T. Sako, F. Koike, T. Sato, A. Iwasaki, T. Okino, K. Yamanouchi, K. Midorikawa, K. Yamakawa, F. Kannari, H. Nakano, M. Nagasono, K. Tono, M. Yabashi, T. Ishikawa, T. Togashi, H. Ohashi, H. Kimura, Y. Senba | | |
| Three-Photon Double Ionization of Ar Studied by Photoelectron Spectroscopy Using an Extreme Ultraviolet Free-Electron Laser: Manifestation of Resonance States of an Intermediate Ar⁺ Ion | | |
| J. Phys. B 44, 071001 (2011) | | |
| Ar⁺ | Energy Levels, Wavelengths | Th |
| 728. J. M. Bizau, C. Blancard, M. Coreno, D. Cubaynes, C. Dehon, N. El Hassan, F. Folkmann, M. F. Gharaibeh, A. Giuliani, J. Lemaire, A. R. Milosavljević, C. Nicolas, R. Thissen | | |
| Photoionization Study of Kr⁺ and Xe⁺ Ions with the Combined Use of a Merged-Beam Set-up and an Ion Trap | | |
| J. Phys. B 44, 055205 (2011) | | |
| Kr⁺ | Energy Levels, Wavelengths | Exp |
| Xe⁺ | Energy Levels, Wavelengths | Exp |
| 729. I. D. Petrov, V. L. Sukhorukov, U. Hollenstein, L. J. Kaufmann, F. Merkt, H. Hotop | | |
| Autoionization Dynamics of Even Ar (3p⁵_{1/2}np', nf) Resonances: Comparison of Experiment and Theory | | |
| J. Phys. B 44, 025004 (2011) | | |
| Ar | Energy Levels, Wavelengths | Exp |
| 730. S. Civiš, I. Matulková, J. Cihelka, P. Kubelík, K. Kawaguchi, V. E. Chernov | | |
| Time-Resolved FTIR Emission Spectroscopy of Cu in the 1800–3800 cm⁻¹ Region: Transitions Involving f and g States and Oscillator Strengths | | |
| J. Phys. B 44, 025002 (2011) | | |
| Cu | Energy Levels, Wavelengths | Exp |
| 731. L. Di, J.-R. Shi, S.-J. Wang, Q.-L. Dong, J. Zhao, Y.-T. Li, J. Fu, F.-D. Wang, Y.-J. Shi, B.-N. Wan, G. Zhao, J. Zhang | | |
| Emission Lines of Boron, Carbon, Oxygen and Iron in Tokamak Plasma | | |
| Chin. Phys. Lett. 28, 075201 (2011) | | |
| B⁴⁺ | Energy Levels, Wavelengths | Exp |
| C⁵⁺ | Energy Levels, Wavelengths | Exp |
| O⁷⁺ | Energy Levels, Wavelengths | Exp |
| Fe^{17+–22+} | Energy Levels, Wavelengths | Exp |
| 732. L.-M. Ren, Y.-Y. Wang, D.-D. Li, Z.-S. Yuan, L.-F. Zhu | | |
| Inner-Shell Excitations of 2p Electrons of Argon Investigated by Fast Electron Impact with High Resolution | | |
| Chin. Phys. Lett. 28, 053401 (2011) | | |
| Ar | Energy Levels, Wavelengths | E/T |
| 733. J. Friebe, M. Riedmann, T. Wübbena, A. Pape, H. Kelkar, W. Ertmer, O. Terra, U. Sterr, S. Weyers, G. Grosche, H. Schnatz, E. M. Rasel | | |
| Remote Frequency Measurement of the ¹S₀ → ³P₁ Transition in Laser-Cooled ²⁴Mg | | |
| New J. Phys. 13, 125010 (2011) | | |
| Mg | Energy Levels, Wavelengths | Exp |

734. P. Lablanquie, S.-M. Huttula, M. Huttula, L. Andric, J. Palaudoux, J. H. D. Eland, Y. Hikosaka, E. Shigemasa, K. Ito, F. Penent
Multi-Electron Spectroscopy: Auger Decays of the Argon 2s Hole
 Phys. Chem. Chem. Phys. 13, 18355-18364 (2011)
- Ar^{+−2+}** Energy Levels, Wavelengths Exp
735. J. Colgan, J. Abdallah Jr., A. Ya. Faenov, T. A. Pikuz, I. Yu. Skobelev, Y. Fukuda, Y. Hayashi, A. Pirozhkov, K. Kawase, T. Shimomura, H. Kiriya, Y. Kato, S. V. Bulanov, M. Kando
Observation and Modeling of High Resolution Spectral Features of the Inner-Shell X-ray Emission Produced by 10^{−10} Contrast Femtosecond-Pulse Laser Irradiation of Argon Clusters
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- Ar^{9+−17+}** Energy Levels, Wavelengths Exp
736. C. Beilmann
Über die Stärke mehrelektronischer Resonanzen bei der Photorekombination und -ionisation
 Thesis, Univ. Heidelberg, Germany , (2011)
- Fe¹⁵⁺** Energy Levels, Wavelengths E/T
737. P. Bogdanovich, V. Jonauskas, R. Karpušienė, O. Rancova
Theoretical Investigation of X-ray Radiation of 4-4 Transitions in Highly Charged Tungsten Ions
 Nucl. Instrum. Methods Phys. Res. A 619, 15-17 (2010)
- W²⁹⁺** Energy Levels, Wavelengths Th
W³⁶⁺ Energy Levels, Wavelengths Th
738. M. C. Simon, J. R. Crespo López-Urrutia, C. Beilmann, M. Schwarz, Z. Harman, S. W. Epp, B. L. Schmitt, T. M. Baumann, E. Behar, S. Bernitt, R. Follath, R. Ginzler, C. H. Keitel, R. Klawitter, K. Kubiček, V. Mäkel, P. H. Mokler, G. Reichardt, O. Schwarzkopf, J. Ullrich
Resonant and Near-Threshold Photoionization Cross Sections of Fe¹⁴⁺
 Phys. Rev. Lett. 105, 183001 (2010)
- Fe¹⁴⁺** Energy Levels, Wavelengths Exp
739. R. K. Gangwar, L. Sharma, R. Srivastava, A. D. Stauffer
Electron-Impact Excitation of Krypton: Cross Sections of Interest in Plasma Modeling
 Phys. Rev. A 82, 032710 (2010)
- Kr** Energy Levels, Wavelengths Th
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Theoretical Study of Interesting Fine-Structure Splittings Based on a Scenario for Precise Calculations
 Chin. Phys. Lett. 27, 033101 (2010)
- C²⁺** Energy Levels, Wavelengths Th
Si²⁺ Energy Levels, Wavelengths Th
741. P. R. Young, T. Watanabe, H. Hara, J. T. Mariska
High-Precision Density Measurements in the Solar Corona
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- Fe^{11+−12+}** Energy Levels, Wavelengths Exp

742. Z.-Y. Zhou, S.-I. Chu
Time-Dependent Localized Hartree-Fock Density-Functional Linear Response Approach for Photoionization of Atomic Excited States
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|-----------|----------------------------|----|
| Ne | Energy Levels, Wavelengths | Th |
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Relativistic Configuration Interaction Calculations on the $K\alpha$ X-ray Satellites of Chromium
 Phys. Scr. 79, 025304 (2009)
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| Al¹¹⁺ | Energy Levels, Wavelengths | Th |
| Ar¹⁶⁺ | Energy Levels, Wavelengths | Th |
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| Ar | Energy Levels, Wavelengths | Exp |
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|-------------------------|----------------------------|-----|
| Fe⁶⁺ | Energy Levels, Wavelengths | Exp |
| Fe¹⁶⁺ | Energy Levels, Wavelengths | Exp |
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| Ar⁻ | Energy Levels, Wavelengths | Exp |
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| H⁻ | Energy Levels, Wavelengths | Th |
| He⁻ | Energy Levels, Wavelengths | Th |
| He | Energy Levels, Wavelengths | Th |
| Li | Energy Levels, Wavelengths | Th |
| Li⁺ | Energy Levels, Wavelengths | Th |

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| Ni⁺ | Energy Levels, Wavelengths | Exp |
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|-------------------------|----------------------------|----|
| C⁴⁺ | Energy Levels, Wavelengths | Th |
| Ar¹⁶⁺ | Energy Levels, Wavelengths | Th |
| Fe²⁴⁺ | Energy Levels, Wavelengths | Th |
| Kr³⁴⁺ | Energy Levels, Wavelengths | Th |
| Pd⁴⁴⁺ | Energy Levels, Wavelengths | Th |
| Ba⁵⁴⁺ | Energy Levels, Wavelengths | Th |
| Dy⁶⁴⁺ | Energy Levels, Wavelengths | Th |
| Os⁷⁴⁺ | Energy Levels, Wavelengths | Th |
| Pb⁸⁰⁺ | Energy Levels, Wavelengths | Th |
| Rn⁸⁴⁺ | Energy Levels, Wavelengths | Th |
| U⁹⁰⁺ | Energy Levels, Wavelengths | Th |
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| Ti⁺ | Energy Levels, Wavelengths | Exp |
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- | | | |
|---------------------------|----------------------------|-----|
| C | Energy Levels, Wavelengths | Exp |
| Na-Al | Energy Levels, Wavelengths | Exp |
| Ca⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Sc-Ni⁺ | Energy Levels, Wavelengths | Exp |
| Fe | Energy Levels, Wavelengths | Exp |
| Sr⁺ | Energy Levels, Wavelengths | Exp |
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| | Mn⁺ | Energy Levels, Wavelengths | Exp |
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| | Ti⁺ | Energy Levels, Wavelengths | Exp |
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| | Ti | Energy Levels, Wavelengths | Exp |

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| Cu¹⁴⁺ | Energy Levels, Wavelengths | E/T |
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|-----------------------------|----------------------------|-----|
| Fe⁸⁺ | Energy Levels, Wavelengths | Exp |
| Fe⁹⁺ | Energy Levels, Wavelengths | Exp |
| Fe¹¹⁺ | Energy Levels, Wavelengths | Exp |
| Fe¹³⁺⁻¹⁵⁺ | Energy Levels, Wavelengths | Exp |
| Fe¹⁷⁺ | Energy Levels, Wavelengths | Exp |
| Fe¹⁸⁺ | Energy Levels, Wavelengths | Exp |
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| Ar¹²⁺ | Energy Levels, Wavelengths | Exp |
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| N⁰⁺⁻²⁺ | Energy Levels, Wavelengths | Exp |
| Mg⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Al²⁺ | Energy Levels, Wavelengths | Exp |
| Si⁺²⁺ | Energy Levels, Wavelengths | Exp |
| S²⁺ | Energy Levels, Wavelengths | Exp |
| Cl⁺ | Energy Levels, Wavelengths | Exp |
| Ti²⁺ | Energy Levels, Wavelengths | Exp |
| V⁺ | Energy Levels, Wavelengths | Exp |
| Cr⁺²⁺ | Energy Levels, Wavelengths | Exp |
| Mn⁺²⁺ | Energy Levels, Wavelengths | Exp |
| Fe⁰⁺⁻²⁺ | Energy Levels, Wavelengths | Exp |
| Ni⁺ | Energy Levels, Wavelengths | Exp |
| Cu⁺ | Energy Levels, Wavelengths | Exp |
| Zn⁰⁺⁻¹⁺ | Energy Levels, Wavelengths | Exp |
| Ga⁺ | Energy Levels, Wavelengths | Exp |

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| Li⁺ | Energy Levels, Wavelengths | E/T |
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| O^{6+–7+} | Energy Levels, Wavelengths | Exp |
| Ne^{7+–9+} | Energy Levels, Wavelengths | Exp |
| Na⁹⁺ | Energy Levels, Wavelengths | Exp |
| Mg^{9+–11+} | Energy Levels, Wavelengths | Exp |
| Al^{11+–12+} | Energy Levels, Wavelengths | Exp |
| Si^{12+–13+} | Energy Levels, Wavelengths | Exp |
| Fe^{15+–22+} | Energy Levels, Wavelengths | Exp |
| Ni^{18+–20+} | Energy Levels, Wavelengths | Exp |
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| Ni | Energy Levels, Wavelengths | Exp |
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| Li-Ar | Trans. prob., Oscill. Strengths | Th |
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| Fe¹¹⁺ | Trans. prob., Oscill. Strengths | Th |
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| Theoretical energy level spectra and transition data for $4p^64d$, $4p^64f$ and $4p^54d^2$ configurations of W^{37+} ion | | |
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| W^{37+} | Trans. prob., Oscill. Strengths | Th |
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| B Z= 7-30 | Trans. prob., Oscill. Strengths | Th |
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| W^{24+} | Trans. prob., Oscill. Strengths | Th |
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| At. Data Nucl. Data Tables 98, 373-390 (2012) | | |
| Kr^{4+} | Trans. prob., Oscill. Strengths | Th |
| Mo^{10+} | Trans. prob., Oscill. Strengths | Th |
| Sn^{18+} | Trans. prob., Oscill. Strengths | Th |
| Xe^{22+} | Trans. prob., Oscill. Strengths | Th |
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| W^{29+}-$37+$ | Trans. prob., Oscill. Strengths | Th |
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|--------------------------|---------------------------------|----|
| Hf ¹²⁺ | Trans. prob., Oscill. Strengths | Th |
| W ¹⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| Os ¹⁸⁺ | Trans. prob., Oscill. Strengths | Th |
| Pt ²⁰⁺ | Trans. prob., Oscill. Strengths | Th |
| Hg ²²⁺ | Trans. prob., Oscill. Strengths | Th |
| Pb ²⁴⁺ | Trans. prob., Oscill. Strengths | Th |
| Po ²⁶⁺ | Trans. prob., Oscill. Strengths | Th |
| Ra ³⁰⁺ | Trans. prob., Oscill. Strengths | Th |
| Th ³²⁺ | Trans. prob., Oscill. Strengths | Th |
| U ³⁴⁺ | Trans. prob., Oscill. Strengths | Th |
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Effects of the electron correlation and Breit and hyperfine interactions on the lifetime of the $2p^53s$ states in neutral neon
 Phys. Rev. A 86, 052523 (2012)
- | | | |
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| Ne | Trans. prob., Oscill. Strengths | Th |
|-----------|---------------------------------|----|
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Decay of the $1s^22s3p\ ^3P_0$ level in Be-like ions
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| Be Z= 5-12 | Trans. prob., Oscill. Strengths | Th |
| Be Z= 14-34 step 2 | Trans. prob., Oscill. Strengths | Th |
| Be Z= 46-56 step 2 | Trans. prob., Oscill. Strengths | Th |
| Be Z= 70-90 step 4 | Trans. prob., Oscill. Strengths | Th |
| Mo ³⁸⁺ | Trans. prob., Oscill. Strengths | Th |
| Sm ⁵⁸⁺ | Trans. prob., Oscill. Strengths | Th |
| U ⁸⁸⁺ | Trans. prob., Oscill. Strengths | Th |
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Calculation of parity nonconservation in xenon and mercury
 Phys. Rev. A 86, 052512 (2012)
- | | | |
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| Xe | Trans. prob., Oscill. Strengths | Th |
| Hg | Trans. prob., Oscill. Strengths | Th |
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Blackbody radiation shift of the B^+ clock transition
 Phys. Rev. A 86, 052505 (2012)
- | | | |
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| B ⁺²⁺ | Trans. prob., Oscill. Strengths | Th |
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814. M. S. Safronova, U. I. Safronova, C. W. Clark
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 Phys. Rev. A 86, 042505 (2012)
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| Li | Trans. prob., Oscill. Strengths | Th |
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Energy levels, radiative rates and electron impact excitation rates for transitions in He-like Kr XXXV
 Phys. Scr. 86, 035302 (2012)
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| Kr ³⁴⁺ | Trans. prob., Oscill. Strengths | Th |
|--------------------------|---------------------------------|----|

816. T. Das, L. Sharma, R. Srivastava
Electron impact excitation of the M-shell electrons from Zn-like through Co-like tungsten ions
 Phys. Scr. 86, 035301 (2012)
- | | | |
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| W ^{44+–47+} | Trans. prob., Oscill. Strengths | Th |
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Coupled-Cluster calculations of properties of the boron atom as a monovalent system
 Phys. Rev. A 86, 022505 (2012)
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| B | Trans. prob., Oscill. Strengths | Th |
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Fine-Structure energy levels, radiative rates and lifetimes in Si-like nickel
 Phys. Scr. 86, 015303 (2012)
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| Ni ¹⁴⁺ | Trans. prob., Oscill. Strengths | Th |
|--------------------------|---------------------------------|----|
819. K. M. Aggarwal, F. P. Keenan
Energy levels, radiative rates and electron impact excitation rates for transitions in He-like Ti XXI, V XXII, Cr XXIII and Mn XXIV
 Phys. Scr. 85, 065301 (2012)
- | | | |
|--------------------------|---------------------------------|----|
| Ti ²⁰⁺ | Trans. prob., Oscill. Strengths | Th |
| V ²¹⁺ | Trans. prob., Oscill. Strengths | Th |
| Cr ²²⁺ | Trans. prob., Oscill. Strengths | Th |
| Mn ²³⁺ | Trans. prob., Oscill. Strengths | Th |
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Ratio of forbidden transition rates in the ground-state configuration of O II
 Phys. Rev. A 85, 062506 (2012)
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| O ⁺ | Trans. prob., Oscill. Strengths | Th |
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 Phys. Rev. A 85, 042508 (2012)
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|---------------------------|---------------------------------|-----|
| Si ⁷⁺ | Trans. prob., Oscill. Strengths | Exp |
| P ^{7+–9+} | Trans. prob., Oscill. Strengths | Exp |
| S ⁸⁺ | Trans. prob., Oscill. Strengths | Exp |
| S ¹⁰⁺ | Trans. prob., Oscill. Strengths | Exp |
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 Phys. Rev. A 85, 042506 (2012)
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|--------------------------|---------------------------------|----|
| Li | Trans. prob., Oscill. Strengths | Th |
| C ³⁺ | Trans. prob., Oscill. Strengths | Th |
| Al ¹⁰⁺ | Trans. prob., Oscill. Strengths | Th |
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Multiconfiguration Dirac-Hartree-Fock energy levels and transition probabilities for W XXXVIII
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| W ³⁷⁺ | Trans. prob., Oscill. Strengths | Th |
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| C⁴⁺ | Trans. prob., Oscill. Strengths | Th |
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Large-Angle scattering of energetic electrons from Xe: A combined theoretical and experimental approach
 Phys. Rev. A 85, 032703 (2012)
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| Xe | Trans. prob., Oscill. Strengths | Th |
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Dielectronic recombination of Er-like tungsten
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| W⁵⁺ | Trans. prob., Oscill. Strengths | Th |
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Energy levels, radiative rates and electron impact excitation rates for transitions in He-like Cl XVI, K XVIII, Ca XIX and Sc XX
 Phys. Scr. 85, 025306 (2012)
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|-------------------------|---------------------------------|----|
| Cl¹⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| K¹⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| Ca¹⁸⁺ | Trans. prob., Oscill. Strengths | Th |
| Sc¹⁹⁺ | Trans. prob., Oscill. Strengths | Th |
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Energy levels, radiative rates and electron impact excitation rates for transitions in He-like Mg XI, Al XII, P XIV and S XV
 Phys. Scr. 85, 025305 (2012)
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|-------------------------|---------------------------------|----|
| Mg¹⁰⁺ | Trans. prob., Oscill. Strengths | Th |
| Al¹¹⁺ | Trans. prob., Oscill. Strengths | Th |
| P¹³⁺ | Trans. prob., Oscill. Strengths | Th |
| S¹⁴⁺ | Trans. prob., Oscill. Strengths | Th |
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Electron scattering from silicon
 Phys. Rev. A 85, 022711 (2012)
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| Si | Trans. prob., Oscill. Strengths | Th |
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 Rev. Mod. Phys. 84, 175-210 (2012)
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| He | Trans. prob., Oscill. Strengths | E/T |
| Ne | Trans. prob., Oscill. Strengths | E/T |
| Ar | Trans. prob., Oscill. Strengths | E/T |
| Kr | Trans. prob., Oscill. Strengths | E/T |
| Xe | Trans. prob., Oscill. Strengths | E/T |
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| | Mo⁺ | Trans. prob., Oscill. Strengths | E/T |
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| | Ar²⁺ | Trans. prob., Oscill. Strengths | Th |
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| | Be⁺ | Trans. prob., Oscill. Strengths | Th |
| | C³⁺ | Trans. prob., Oscill. Strengths | Th |
| | O⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| | Ne⁷⁺ | Trans. prob., Oscill. Strengths | Th |
| | Ar¹⁵⁺ | Trans. prob., Oscill. Strengths | Th |
| | Fe²³⁺ | Trans. prob., Oscill. Strengths | Th |
| | Mo³⁹⁺ | Trans. prob., Oscill. Strengths | Th |
| | W⁷¹⁺ | Trans. prob., Oscill. Strengths | Th |
| | U⁸⁹⁺ | Trans. prob., Oscill. Strengths | Th |
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J. Phys. B 45, 215003 (2012)
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|--|-----------------------------|---------------------------------|-----|
| | Al Z= 25-29 | Trans. prob., Oscill. Strengths | E/T |
| | S Z= 25-29 | Trans. prob., Oscill. Strengths | E/T |
| | P Z= 25-29 | Trans. prob., Oscill. Strengths | E/T |
| | Si Z= 25-29 | Trans. prob., Oscill. Strengths | E/T |
| | Cl⁺⁴⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Cl³⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Ti⁶⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Ti⁶⁺⁻⁹⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Mn⁹⁺⁻¹²⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Cu¹³⁺⁻¹⁶⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Ge¹⁶⁺⁻¹⁹⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Ge¹⁸⁺ | Trans. prob., Oscill. Strengths | E/T |
| | Kr²²⁺ | Trans. prob., Oscill. Strengths | E/T |
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J. Phys. B 45, 145002 (2012)
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| | Tm Z= 70-74 | Trans. prob., Oscill. Strengths | Th |
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| | Al⁺ | Trans. prob., Oscill. Strengths | Th |
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Comparative semi-empirical and ab initio atomic structure calculations in Yb-like tungsten W⁴⁺
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