

Data evaluation of helium and its isotopes for fusion plasma

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Hydrogen and helium and their recombination molecules (H_2 , HeH^+ , etc) are important molecules in fusion plasmas and these molecule properties are studied by theoretically and experimentally. Thus, cross-section data for electron impact with hydrogen and helium and their combination molecules are surveyed and compiled. Cross sections are collected and reviewed for total scattering, elastic scattering, momentum transfer, excitations, electronic states, recombination, ionization, emission of radiation attachment. For each process, the recommended values of the cross section are presented for use. The literature has been surveyed through the end of 2015. A strong emphasis is placed on the consistency of the results determined by different techniques. In cases where only a single set of data is available for a given cross section those data are normally presented, but not designated as recommended, unless there is a strong reason to reject them.