

“Calculation of electron scattering from tin atoms”

H. Umer, I. Bray, D. V. Fursa

Curtin University

Abstract

We calculated a cross section dataset for electron scattering on neutral tin atoms in the ground and low-lying excited states. The obtained results include integrated and momentum transfer cross sections for elastic scattering alongside integrated and differential cross sections for excitations to the $5p^2$, $5p6s$, $5p5d$ and $5p6p$ manifolds. Total ionisation cross sections were also obtained, accounting for direct ionisation out of the valence $5p$ and closed $5s$ shells and indirect contributions from excitation autoionisation. This dataset will assist in modelling fusion plasmas, and in particular in monitoring the erosion of vessel walls in tokamak fusion reactors where tin is embedded as a marker into the wall tiles.