Abstract

The distorted wave method has been applied to calculate the differential and integral cross sections for 1^1S-2^3P excitations of helium atom by electron impact in the energy range of 40-200 eV. The initial distortion potential is taken as the static potential of the helium (target) atom in the initial state (1^1S) while the final distortion potential is taken as the average of the initial- and final-state static potentials of helium atom. The distorted waves are determined by partial wave expansion method by expanding it in terms of spherical harmonics and the radial equation corresponding to distorted waves is solved by use of Numerov method. A computer program DWBA1 written for e^--H scattering by Madison and Bartschat is modified toperform the numerical calculations for e^--He scattering and the results obtained are compared with experimental and theoretical results. The present results for 1^1S-2^3P transition are in a good agreement with experimental and theoretical results.