

Electron impact scattering from beryllium and tungsten

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Interaction of charged particles, especially electrons, with plasma wall and divertor plate is a hot topic due to their significance in modeling plasma for fusion reactors. The choice of an appropriate element for the plasma wall or divertor plate is critical in its design [1]. The phenomena like erosion of wall material, transport of impurities, and redeposition of these impurities on the walls are imperative in any plasma reactor [2] and hence need to be considered in any model. The elements of interest for such studies are Li, Be, W, etc. Tungsten is an apparent choice for wall coating element due to its high temperature survivability, high neutron irradiation and low hydrogen retention [3]. These elements, along with their oxides or clusters with other element, are found to be impurities in the fusion edge plasma [4]. Due to the need for collision data on these elements and their molecules or clusters, a method for calculating various cross section is presented here. These data are presented for energy range from the ionization threshold of the atom/molecule/cluster to 10 keV.

References

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