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Computation of Electron Impact Ionization Cross sections of Iron Hydrogen Clusters – Relevance in Fusion Plasmas UMANG PATEL, Gandhinagar Institute of Technology, K N JOSHIPURA, Sardar Patel University — Plasma-wall interaction (PWI) is one of the key issues in nuclear fusion research. In nuclear fusion devices, such as the JET tokamak or the ITER, first-wall materials will be directly exposed to plasma components. Erosion of first-wall materials is a consequence of the impact of hydrogen and its isotopes as main constituents of the hot plasma. Besides the formation of gas-phase atomic species in various charge states, di- and polyatomic molecular species are expected to be formed via PWI processes. These compounds may profoundly disturb the fusion plasma, may lead to unfavorable re-deposition of materials and composites in other areas of the vessel. Interaction between atoms, molecules as well transport of impurities are of interest for modelling of fusion plasma. Q_{ion} by electron impact are such process also important in low temperature plasma processing, astrophysics etc. We reported electron impact Q_{ion} for iron hydrogen clusters, FeH_n (n = 1 to 10) from ionization threshold to 2000eV. A semi empirical approach called Complex Scattering Potential – Ionization Contribution (CSP-*ic*) has been employed for the reported calculation[1]. In context of fusion relevant species Q_{ion} were reported for beryllium and its hydrides, tungsten and its oxides and cluster of beryllium-tungsten by Huber *et al*[2]. Iron hydrogen clusters are another such species whose Q_{ion} were calculated[2] through DM and BEB formalisms, same has been compared with present calculations. [1]U. R. Patel *et al*, J. Chem. Phys, **140** (2014) 44302 [2]S. E. Huber *et al*, Eur. Phys. J. D. 70 (2016) 182

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