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Ionizing Collisions of Electrons with Radical Species OH, H_2O_2 and HO_2; Theoretical Calculations K N JOSHIPURA, Retired Professor, Sardar Patel University, S H PANDYA, KKSJ Maninagar Science College, B G VAISHNAV, Physical Research Laboratory, U R PATEL, Gandhinagar Institute of Technology, Gujarat, India — In this paper we present our calculated total ionization cross sections (TICS) of electron impact on radical targets OH, H_2O_2 and HO_2 at energies from threshold to 2000 eV. Reactive species such as these pose difficulties in measurements of electron scattering cross sections. No measured data have been reported in this regard except an isolated TICS measurement on OH radical, and hence the present work on the title radicals hold significance. These radical species are present in an environment in which water molecules undergo dissociation (neutral or ionic) in interactions with photons or electrons. The embedding environments could be quite diverse, ranging from our atmosphere to membranes of living cells. Ionization of OH, H_2O_2 or HO_2 can give rise to further chemistry in the relevant bulk medium. Therefore, it is appropriate and meaningful to examine electron impact ionization of these radicals in comparison with that of water molecules, for which accurate da are available. For the OH target single-centre scattering calculations are performed by starting with a 4-term complex potential, that describes simultaneous elastic *plus* inelastic scattering. TICS are obtained from the total inelastic cross sections in the *complex scattering potential - ionization contribution* formalism,a well established method. For H_2O_2 and HO_2 targets, we employ the additivity rule with overlap or screening corrections. Detailed results will be presented in the Conference.

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