Electron impact excitation and dissociation cross sections for H_2O_2

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Hydrogen peroxide (H_2O_2) is a crucial reactive species in the context of plasma medicine. However, electron collision cross section data for H_2O_2, which are important for understanding its kinetics in low temperature plasmas, is extremely limited. Here, calculations of electron impact excitation and dissociation cross sections for H_2O_2 are performed using the polyatomic R-matrix method. These calculations substantially extend the available cross section data for the H_2O_2 molecule. Electron impact rate coefficients calculated from these cross sections are significantly different from estimates often used in plasma models in the literature. Implications of these results for plasma modelling will be discussed.