Keep-in-Touch meeting
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Electron-neutral scattering cross sections for H_2O

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Water is an omnipresent impurity that is frequently encountered in many applications. On the other hand, it is also an abundant source of hydrogen. For instance in CO_2 plasma conversion, water addition might allow the direct production of hydrocarbons. Here, the interaction of water molecules with electrons is crucial. A common description of the electron kinetics is the solution of the electron Boltzmann equation in the two-term approximation yielding the electron energy distribution function. However, for water the required complete and consistent set of electron collision cross sections is not openly available on LXCat. For that reason, two sets of cross sections are proposed that include but are not limited to a rigorous treatment of rotational collisions by means of the Born approximation either assuming isotropic scattering in inelastic collisions or considering the anisotropy of the scattering process. The sets are optimized/validated against experimental electron swarm parameters and will be made available in the IST-Lisbon database.