

# Hydrogen isotope dependence in dissociative electron attachment

*Tuesday, 16 July 2024 13:55 (25 minutes)*

In my talk, I will present a theoretical investigation on electron-D<sub>2</sub> resonant collisions, via the low-lying and the Rydberg states of D<sub>2</sub><sup>-</sup>. I will focus, in particular, on low-energy cross section calculations, vibrationally resolved, for the dissociative attachment process in the ground state, and two electronic excited states of D<sub>2</sub>. Isotopologue effect for H<sub>2</sub> and D<sub>2</sub> will be shown and transitions between electronic excited states will be considered.

The electronic structures of deuterium are obtained by using ab-initio quantum chemistry approaches implemented in computer codes like MOLPRO and UK-R-Matrix whereas the nuclear dynamics is studied within the theoretical models of Bardsley's local-complex-potential model.

Comparisons with cross sections present in the literature, where applicable, will be presented.

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