

Abstract Submitted
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Theoretical Studies of Dissociative Recombination of Electrons with SH⁺ Ions¹ D.O. KASHINSKI², O.E. DI NALLO, United States Military Academy, A.P. HICKMAN, Lehigh University, J.ZS. MEZEI, I.F. SCHNEIDER, Université du Havre, D. TALBI, Université Montpellier II — We are investigating the dissociative recombination (DR) of electrons with the molecular ion SH⁺. (The process is $e^- + \text{SH}^+ \rightarrow \text{S} + \text{H}$.) SH⁺ is found in the interstellar medium (ISM), and little is known concerning its interstellar chemistry. The abundance of SH⁺ in the ISM suggests that destruction processes, like DR, are inefficient. Understanding the role of DR as a destruction pathway for SH⁺ will lead to more accurate astrophysical models. Large active-space multi-reference configuration interaction (MRCI) electronic structure calculations were performed to obtain excited-state potential energy curves (PECs) for several values of SH separation. Excited Rydberg states have proven to be of importance. The block diagonalization method was used to disentangle interacting states, forming a diabatic representation of the PECs. Currently we are performing Multichannel Quantum Defect Theory (MQDT) dynamics calculations to obtain DR rates. The status of the work will be presented at the conference.

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