

Abstract Submitted
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Dissociative Electron Attachment to HCN and HNC¹ S.T. CHOUROU, A.E. OREL, University of California, Davis — HCN and its isomer HNC are known to be among the initial species that drive synthesis of amino acid and protein in interstellar media. Dissociative electron attachment (DEA) to those molecules may thus have an impact on these chemical processes of relevance in astrophysics. Previous experimental and theoretical studies have indicated both σ and π low-lying resonances. These resonant states are expected to depend on stretching and bending of the molecule and to lead to competing ($CN^- + H$) and ($CN + H^-$) products. In this work, we present a comparative study of the dissociation mechanism. We carried out electron scattering calculations using the Complex Kohn Variational Method as a function of the three internal degrees of freedom to obtain the resonance energy surface and autoionization widths. We use this as input to a dynamics calculation using the multiconfiguration time-dependant Hartree (MCTDH) approach. We finally compare our DEA cross sections and branching ratios to available findings.

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