

Abstract Submitted
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Dynamics of Dissociative Electron Attachment to Methane¹ T.N. RESCIGNO, LBNL, N. DOUGUET, S. FONSECA, A.E. OREL, UC Davis, D.S. SLAUGHTER, A. BELKACEM, LBNL — We present the results of a theoretical and experimental study of dissociative electron attachment (DEA) to CH₄. The total DEA cross section is dominated by a single broad peak centered near 10 eV, leading predominantly to H⁻/CH₄ and CH₂⁻/CH₄ dissociation channels. We will present evidence that both of these ion channels result from excitation of a triply degenerate Feshbach resonance (doubly excited negative ion state) of ²T₂ symmetry whose parent is the lowest excited triplet state of the neutral molecule. We will present calculated angular distributions based on analysis of the entrance amplitudes obtained from the results of complex Kohn scattering calculations along with experimentally measured angular distributions obtained using the COLTRIMS method.

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