Abstract Submitted
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Cross-Sections and Fragmentation Pathways of Dissociative Electron Impact Ionization of 2,5-Dimethylfuran (C_6H_8O)[1] C.Q. JIAO, UES Inc., A. GARSCADDEN, S.F. ADAMS, Air Force Research Laboratory — The possibilities offered by nonequilibrium plasma to guide parameters such as the mean electron energy provides researchers with an opportunity to change the energy branching in molecular gas plasmas from mainly gas heating and vibrational excitation to high-energy electronic excitation and ionization. The kinetics of the dissociative electron impact ionization of fuel molecules and subsequent ion-molecule reactions are important basic data needed for modeling the charged particle chemistries in plasmas. This paper presents the results of a high resolution Fourier-Transform mass spectrometry study on the electron impact ionization of 2,5-dimethylfuran (C_6H_8O), which is an important fuel additive and a possible renewable liquid fuel for the future. The total and partial ionization cross sections will be provided and the pathways of fragmentation channels forming major product ions will be discussed.

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