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Low-Energy Electron Induced Reactions in Condensed Methanol MICHAEL BOYER, Clark University, MAVIS BOAMAH, KRISTAL CHAMBER-LAIN, CHANMAYE MYAE SOE, Wellesley College, ANDREW BASS, LEON SANCHE, Universite de Sherbrooke, CHRISTOPHER ARUMAINAYAGAM, Wellesley College — We investigate the dynamics of low-energy electron-induced reactions in condensed thin films of methanol (CH_3OH) through electron stimulated desorption (ESD) and post-irradiation temperature programmed desorption (TPD) experiments. ESD experiments indicate that the anions which desorb from the methanol thin film during electron irradiation are predominantly formed through the dissociation of temporary negative ions formed by electron capture by methanol molecules, a process known as dissociative electron attachment (DEA). However, based on investigation of reaction products remaining in the methanol thin film postirradiation through TPD experiments, DEA is not the obvious primary mechanism by which methoxymethanol (CH_3OCH_2OH) and ethylene glycol (HOCH₂CH₂OH) are formed. Evidence indicates formation of these molecules may be driven by both DEA and electron impact excitation.

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