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## **ELECTRON INTERACTIONS WITH FLUOROMETHANES**

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It is fascinating to see the growing interest in the study of electron scattering by fluoromethanes and its diverse applications in various fields. The importance of electron scattering studies extends to various scientific and industrial domains. In particular, the urgent need for cross-section data for electron scattering from partially fluorinated methanes ( $\text{CH}_2\text{F}_2$ ,  $\text{CH}_3\text{F}$ ,  $\text{CHF}_3$ ) is required, especially in plasma processing, material sciences, and earth sciences [1]. These partially fluorinated methane gases, being considered "environmentally acceptable, next-generation plasma-processing gases," are of interest due to their potentially shorter atmospheric lifetimes compared to  $\text{CF}_4$  [2]. Hence, in the present work we studied the electron interactions with fluoromethanes, viz.,  $\text{CH}_3\text{F}$ ,  $\text{CH}_2\text{F}_2$  and  $\text{CHF}_3$  for an extensive impact energy range 0.1 eV to 5000 eV. For the low energy calculations, we employed the R-matrix formalism [3] and for intermediate to high energy calculations, Spherical Complex Optical Potential approach [4] in conjunction with Complex Scattering Potential-ionization contribution method has been utilized [5]. Various cross-sections (momentum transfer, differential, ionization, excitation, total inelastic, elastic etc.) for various elastic and inelastic molecular processes have been quantified.

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