TIFR Centre for Interdisciplinary Sciences
21 Brundavan Colony, Narsingi, Hyderabad 500075

Seminar

Low energy electron: Can it be a new tool to control chemical reactions?

Vaibhav S Prabhudesai

Tata Institute of Fundamental Research, Mumbai

Dissociative electron attachment (DEA) is known to play a crucial role in plasma processing, radiation damage as well as astrochemistry. Here the electrons involved are of energy up to 20 eV. Such low energy electrons are also known to play important role in catalysis. Recently, we have also shown that the DEA process in ground state organic molecules shows site selectivity. In order to appreciate and subsequently use these effects one must study the molecular dynamics involved in DEA.

In our group at TIFR Mumbai, we study the dynamics of DEA using a novel technique called velocity slice imaging where we gather information about the dissociation process in terms of the momentum distribution of the anion fragment arising from the DEA to the molecules in the gas phase. On the other hand we are also exploring the effects, these low energy electrons cause, in the condensed phase molecular layers using FTIR spectroscopy. The goal behind these studies is to ultimately realise the potential of low energy electrons in chemical reaction control. In this talk I will share our latest results from these studies.

Wednesday, May 13th 2015

4:00 PM (Tea/Coffee at 3:45 PM)

Seminar Hall, TCIS