

Seminar

Tracing the Photo-Induced Attosecond to Femtosecond Charge Dynamics in Small Systems

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A fundamental understanding of the electronic response of atoms and molecules under photo-excitation or ionisation has always been a central goal of researchers for several decades. Charge dynamics in molecules can be initiated and traced using several experimental techniques based on the pump-probe method, such as NIR-pump—XUV-probe, XUV-pump—XUV-probe, and XUV-pump—NIR-probe. Furthermore, these dynamics can be captured using different detection methods, including reaction microscopy (ReMi or COLTRIMS), HHG, tr-ARPES, TAS, etc. In this talk, I will present the NIR-pump—XUV-probe method used to capture charge migration and transfer in molecules using tr-ARPES. For gas-phase experiments, molecular alignment is crucial. I will share our work on the correlation between pulse parameters and rotational states in relation to molecular alignment and orientation dynamics. Additionally, I will discuss how charge dynamics within an atom can be captured through the spatial and temporal evolution of a strong XUV field as it propagates through a resonant medium. At the end of the talk, I will share my interest in collaborating with TIFR, Hyderabad, and my research goals toward understanding charge dynamics in these systems.

Friday, Apr 4th 2025

16:00 Hrs (Tea / Coffee 15:45 Hrs)

Auditorium, TIFRH