University of Mumbai & Department of Atomic Energy
CENTRE FOR EXCELLENCE IN BASIC SCIENCES
Health Centre, University of Mumbai, Kalina Campus, Mumbai 400098

COLLOQUIUM

ATOMIC COLLISIONS AND INTER DISCIPLINARY SCIENCE

Abstract: Present-day atomic collision physics is closely related to interdisciplinary science, besides being a useful tool for the study of atomic, molecular and quantum mechanics. Collisional interactions of fast ions or electrons with clusters and other mesoscopic objects are useful to bridge the gap between gas atoms and bulk solids. A homo-nuclear diatomic molecules, H_2 be considered as a smallest double-slit to observe Young type electron interference, originally proposed by Cohen and Fano. The complex allotropes of carbon, such as, fullerenes, nanotubes and large organic molecules of biological (DNA bases) interest have been at the focus of recent atomic collision research. The secondary electron emission from bio-molecules/nucleobases is an important parameter to estimate the radiation damage caused by fast ions.. This process is highly influenced by the many-body effects, such as, collective excitation or size effect. The C_{60} fullerene is used as a bench mark system which manifests the collective plasmon excitation/ The electron spectroscopy provides a clear understanding of this process i.e. giant plasmon resonance (GPR).

A recently installed 14.5 GHz ECR-ion-accelerator and existing 14 MV Pelletron tandem accelerator at TIFR are being used for these measurements with keV-to-MeV energy highly charged ions. The tools for the experiments are continuum electron and recoil-ion spectrometers, high resolution x-ray spectrometer etc. A brief overview of the active field of accelerator based atomic collision research will be provided.

By

Prof. LOKESH C. TRIBEDI
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Prof. Lokesh Tribedi graduated from Kalyani University, WB, and did his Master's and doctoral work at the TIFR. He then worked as a postdoctoral fellow at JRM laboratory, Kansas State University (1995-97), Manhattan, USA. Currently, He is Professor at TIFR, Mumbai. His specialization is *Experimental Atomic collision Physics of interdisciplinary nature involving large molecules, clusters, fullerenes and solids using heavy ions accelerators and e-beams: Leader of the accelerator based atomic collision physics. He has published more than 100 research papers in refereed journals.*

Day & Date : **Tuesday, October 28, 2014**

Time : **15:45 hrs**

Venue : **Seminar Room PF-AG-14, Prefabs, Near Annabhau Sathe Bhavan University of Mumbai, Vidyanagari, Mumbai - 400 098**

All are Welcome