

## **Internal Seminar**

### **Interaction of Laser with Mesoscopic Particles**

**Debobrata Rajak**

**TIFR, Hyderabad**

An intriguing aspect of laser matter interaction in the strong field regime is the ionization of atoms via multiple photon absorption and tunneling of electrons under the coulomb barrier; a phenomenon called Above Threshold Ionization (ATI). Strong field interaction depends on the laser energy absorption which in turn depends on the laser parameters and the size of the targets. Mesoscopic particles (sizes of the order of the wavelength of the laser) are used to study the collective properties involved in laser-matter interactions.

We achieve strong field photoemission at relatively lower intensities of  $\sim 10^{11}$  W/cm<sup>2</sup> by interaction of laser with sub-micron sized tungsten (W) tips aided by electric field enhancement at the tip apex. Interaction of laser with matter at higher intensities of  $\sim 10^{16}$ W/cm<sup>2</sup> is also studied with micron-sized droplets as targets.

***Tuesday, Aug 7<sup>th</sup> 2018***

***2:30 PM (Tea/Coffee at 2:00 PM)***

***Seminar Hall, TIFR-H***