

Seminar

(Parvez Guzdar Award Lecture)

Institute for Plasma Research

- Title :** Reduction of Electron Heating in a Magnetized Ultracold Plasma
- Speaker :** Dr. Sanat Kumar Tiwari
University of Iowa
- Date :** 30th August 2017 (Wednesday)
- Time :** 11.00 AM
- Venue :** Seminar Hall, IPR

Abstract :

Ultracold plasma experiments serve as an excellent test-bed to validate the theoretical models proposed for strongly coupled plasmas. These plasmas are unique in a sense that both the species, ions and electrons are in or close to strong coupling regime. The heating mechanisms during an ultracold plasma evolution are responsible to limit the electron species in achieving the strong coupling. While there are known methods to increase the ion coupling strength, increasing the coupling strength of electrons is still a challenge. In this talk, I will be discussing about reduction in electron heating by a factor of three due to a strong external magnetic field in classical molecular dynamics simulation of ultracold plasmas. A strong and long lasting temperature anisotropy develops between the parallel and perpendicular directions to the magnetic field causing an effective drop in the overall electron temperature. The result may guide experiments to achieve improved coupling strength of electron species.
