

Students' Annual Seminar

Shashank Yadav

Topic I: Electron density measurement by using Shack-Hartmann wave front sensor

Plasma density variation in space and time can be characterized by using the 'pump-probe' technique. At high density the electron cloud acts as a material of time varying refractive index which makes it possible to study it through optical shadowgraphy and Shack-Hartmann wave-front sensing.

Topic II: Spin exchange optical pumping of Xenon for NMR applications

NMR sensitivity of noble gases such as Xenon can be improved through spin exchange optical pumping (SEOP) with alkali atoms. It is an optical technique for creating hyper-polarized Xenon and detecting its NMR signals at low fields.

Topic III: Estimating dipolar couplings by using rotor-synchronized recoupling schemes

This work is about measuring proton-proton distances in solid state NMR by using re-coupling schemes. Homo-nuclear dipole-dipole decoupling sequences which, in combination with magic angle spinning, are used to average out the strong homo nuclear DD couplings may not totally average out the couplings under rotor synchronized conditions. This makes it possible to estimate distances based on residual dipole-dipole interactions.

Thursday, May 4th 2017

12:00 PM (Tea/Coffee at 12:30 PM)

Seminar Hall, TCIS