

DEPARTMENT OF PHYSICS  
*Centre of Advanced Studies in Physics*  
PANJAB UNIVERSITY, CHANDIGARH – 160 014, (INDIA)

Fax :+ 91-172-2783336  
Tel :+ 91-172-2534466  
Email: [physics@pu.ac.in](mailto:physics@pu.ac.in)



PHS : .....

Dated: 26 Feb 2018

**TPSC SEMINAR NOTICE**

SPEAKER: Mr. Niranjana Myneni  
Quantum Interactions lab  
Dept. of Light and Matter Physics (LAMP)  
Raman Research Institute, Bangalore, India.

TITLE: Ultra-Cold Atoms Collectively Coupled to Cavity Modes

DATE & DAY: 28 March 2018, Wednesday

VENUE: Seminar Hall

TIME: 4.00 P.M.

**Abstract**

The collective strong coupling of atoms in a magneto-optical trap (MOT) to the transverse electromagnetic modes (TEM) of a Fabry-Perot (FP) cavity is investigated.  $85\text{Rb}$  MOT atoms are prepared at the geometric center of the cavity and the transmission through the collectively coupled atom-cavity system is measured. The density distribution of the laser cooled atoms determines the collective strong coupling of the atoms to the cavity mode. The dependence of collective strong coupling on the choice of TEM mode is measured for few modes. The results are shown to compare well with the theoretical model developed to understand the system. Such measurements are proposed as a tool to estimate atomic density distributions when imaging the atoms is not possible.

All interested are cordially invited to attend.

*N...*  
Chairperson

*CW*  
Chairperson  
Department of Physics  
Panjab University  
Chandigarh-160014