Physical Research Laboratory, Ahmedabad

Colloquium 16-10

Speaker: **Dr. Mausumi Goswami**
Guest Faculty Department of Chemistry, School of Natural Sciences, Shiv Nadar University, UP, India

Title: **"Fourier Transform Microwave Spectroscopy: the ultimate structural tool for molecular science and astronomy"**

Time: **Wednesday, 20 July 2016, 16.00 hrs.**

Venue: **K. R. Ramanathan Auditorium, PRL**

Abstract

Fourier Transform Microwave Spectroscopy (FTMW) is an unparalleled method of choice when it comes to determining highly accurate structures of molecules and complexes in the gas phase. This talk will give a brief overview of the FTMW technique and will discuss how the advent of modern technology has led to the discovery of a revolutionary technique like 'Chirped Pulse FTMW'. Some examples from recent work will also be discussed to highlight how the FTMW techniques can be applied to determine 'near-equilibrium' geometry and dynamics of weakly bound complexes, and how laboratory studies of molecular species using FTMW can lead to remarkable astronomical discoveries.

The Speaker

Dr. Goswami received her MSc and PhD from IIT Guwahati and Indian Institute of Science, Bangalore, respectively. During her PhD work at IISc, she worked on the Pulsed Nozzle Fourier Transform Microwave Spectrometer (PNFTMW), the only one of its kind in India, which utilizes a Fabry Pérot cavity as the interaction region for molecules and microwave. She has had extensive experience in rebuilding the complete data acquisition software and the hardware for the PNFTMW spectrometer during her PhD. Her thesis work was based on the microwave spectroscopic studies of structure and dynamics of weakly bound complexes including the water complex of phenylacetylene, a molecule of relevance in interstellar space. Her PhD thesis work was awarded Dr. J. C. Ghosh medal for the best thesis in Physical chemistry at IISc and has secured her several publications in reputed international journals. Upon finishing her PhD, she pursued her postdoctoral work at University of Hawaii at Manoa, USA and University of Virginia, USA and worked on different techniques like crossed beam scattering and helium nano droplet isolation techniques. Her future research interest deals with the detection and identification of molecules of astrophysical significance in laboratory via state-of-the-art microwave spectroscopic techniques.

Tea at 15:30 hrs.

ALL ARE WELCOME