



Physical Research Laboratory, Ahmedabad

COLLOQUIUM - 14 - 18

- Speaker:** **Prof. P.K. Manoharan**
Professor and Head, Radio Astronomy Centre, National Centre for Radio Astrophysics, Tata Institute of Fundamental Research, Ooty.
- Title:** **“Ooty Interplanetary Scintillation Observations and 3-D Heliosphere”**
- Time:** **Wednesday, 17 December, 2014, 16.00 hrs.**
- Venue:** **K. R. Ramanathan Auditorium, PRL.**

Abstract

Interplanetary scintillation (IPS) measurements from the Ooty Radio Telescope provide estimates of solar wind in the heliocentric distance range of ~ 10 -250 solar radii and at most of the heliospheric latitudes. A routine monitoring of IPS on a large number radio sources, along different lines of sight through the heliosphere, allows the reconstruction of three-dimensional structures of quasi-stationary and transient solar wind over a size ~ 3 AU heliosphere. In this talk the results on the three-dimensional distribution of solar wind density and speed and the propagation characteristics of coronal mass ejection (CME) events will be reviewed. This talk will also include a discussion on the IPS tracking of solar disturbances within the inner heliosphere and its usefulness in forecasting the CME arrival by model(s). For example, in the current solar cycle, though weak, a group of large active regions produced five wide and fast CMEs during 12-23 July 2012 and Ooty results on these events have been compared with STEREO measurements, which included an 'ultra fast' CME event originated behind the Sun. The 3-D views of these events obtained from Ooty have extremely been useful in understanding their expansion characteristics as well as to track the far-side originated disturbance.

The Speaker

Prof. P.K. Manoharan joined TIFR in 1975, immediately after his B.Sc. (Special Physics) at American College, Madurai, and has been associated with the Ooty Radio Telescope ever since. He completed his doctoral studies in 1991 at TIFR, and then spent one year (1993) as a JSPS Fellow at the Solar-Terrestrial Environment Laboratory, Japan, more than a year (1995-96) as a Visiting Fellow at the Observatoire de Paris, Meudon, France, and nearly two years (2002-03) as a Visiting Scientist at the Goddard Space Flight Center, NASA and University of Maryland, USA. Areas of his research interest are Multi-wavelength studies of Solar Eruptions; Solar activity; Acceleration of the Solar wind; and the Interplanetary Medium. Prof. Manoharan is actively involved in research on solar and interplanetary physics. He developed a unique method to determine the speed and other physical properties of the solar wind using interplanetary scintillation (IPS) measurements from a single radio telescope. Presently, Prof. Manoharan is heading the Radio Astronomy Centre (NCRA-TIFR) and its major radio astronomical facility, the Ooty Radio Telescope (ORT), which is used for several astrophysical studies. Prof. Manoharan is a member of Asia-Oceania Geosciences Society & International Astronomical Union and Life Member of Astronomical Society of India.

Tea at 15:30 hrs.

ALL ARE WELCOME

