



# Physical Research Laboratory, Ahmedabad

## Colloquium 17-05

- Speaker:** *Dr. Aveek Sarkar*  
Reader, Astronomy and Astrophysics Division, PRL, Ahmedabad.
- Title:** “Solar wind turbulence: a reconciliation of observation and theory”
- Time:** Wednesday, 15 February 2017, 16.00 hrs.
- Venue:** K. R. Ramanathan Auditorium, PRL

### Abstract

Sun, like other stars, can have wind in its atmosphere. Existence of such 'solar wind' was first proposed in 1958. A few years later, this proposal was confirmed via spacecraft observation. Since then it has attracted a lot of interests from solar physicists. Solar wind shows complicated turbulent behaviour. It has been suggested based on various observations that at 1 AU, solar wind consists of spaghetti-like magnetic field structures with the magnetic topology of flux tubes. It is also observed that the plasma fluctuation spectra at 1 AU show a plasma beta dependence. Reconciling these two sets of observations together, the present talk will discuss the direct numerical simulation of the full magnetohydrodynamic equations and will show that if the plasma inside the flux tube is driven unstable by spatial inhomogeneities in the background plasma pressure, the observed nature of the fluctuating power-spectra agree reasonably well with observations as well as with analytical predictions.

### The Speaker

Dr. Aveek Sarkar obtained his Ph.D. in 2005 from Max Planck Institute, Goetting, Germany. During his Ph.D. he worked on fundamental dynamo theory and on numerical simulations of dynamo experiments. After finishing his Ph.D. his research focused more on solar physics as he worked in the UK and USA as a postdoctoral fellow and a research scientist. He returned to India in 2014 and worked for a short period at IISER Kolkata before joining PRL in 2015. His main research interests revolve around magnetohydrodynamic simulation of astrophysical plasma.

Tea at 15:30 hrs.

**ALL ARE WELCOME**

