



## **Radio Probing of Planetary Bodies using GMRT and Science**

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Jupiter's Synchrotron Radiation (JSR) is emitted from relativistic electrons trapped in the Jovian radiation belt. Intensity and frequency of synchrotron emission depend on electron energy, number density, and magnetic field strength. Therefore, it is the most effective probe that can be used to investigate the dynamics of the radiation belt. The characteristic frequency of JSR varies from several tens of megahertz to several gigahertz, which is caused by electrons with energy from several to several tens of mega electron volts.

The first observation of JSR emissions using GMRT was carried out in February-March 2003. This was followed with GMRT observations of Jupiter in 2007 and 2008 to understand the short-term variability in JSR emission. In 2011 the GMRT radio observations of Jupiter were made in concurrence with infrared observations using NASA's Infrared Telescope Facility (IRTF) in Hawaii. Recently, the GMRT observations are conducted in coordination with Juno mission, which is currently in orbit around Jupiter. The radio observations using GMRT are now being further grown with the application to study surface and sub-surface thermal properties of Venus and Moon.

This talk will present the studies on use of GMRT for planetary bodies and the interesting results that has been obtained from such observations.