



भारतीय ताराभौतिकी संस्थान
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स्नातक अध्ययन मंडल **Board of Graduate Studies.**

Ph.D Synopsis Seminar

Speaker: Bane Kshitij Suhas Trupti

शीर्षक Title: Time domain Astronomy at Low Radio Frequencies (<100 MHz): Instrumentation and Observations

सार Abstract

Exploration of the transient Universe is an exciting and fast-emerging area within radio astronomy. These include Pulsars, FRBs, GRBs, Flaring Stars, Sun, etc. Transient phenomena are likely locations of explosive or dynamic events, and they offer tremendous potential to uncover new physics. In addition, short-duration transients are powerful probes of intervening media owing to dispersion and scattering that modify the signals. However, observations of such transients at low radio frequencies ($\lesssim 100$ MHz) is largely uncharted territory due to various practical limitations.

A pulsar is a highly magnetized, rapidly rotating neutron star that emits beams of electromagnetic radiation. Pulsar observations at frequencies $\lesssim 100$ MHz are necessary for understanding their emission mechanism. Fast Radio Bursts (FRBs) are still eluding astronomers about their origin. FRBs have been detected at 120 MHz and 111 MHz. This suggests that detecting them at even lower frequencies might be possible. For this, continuous monitoring of the sky at low frequencies is essential. Considering this, we have set up a radio telescope in the Gauribidanur Observatory for dedicated observations of pulsars and other transients in the frequency range of 50 to 80 MHz. Its purpose is to observe and understand the characteristics of known pulsars and potentially search for FRBs at these frequencies if they should occur. This observing facility is a dedicated instrument with wide sky coverage, large bandwidth, and high time resolution, which are important for observing fast transients.

I will give details of the development of the observing facility along with the results. I will highlight the importance of the system and future prospects in transient studies at low frequencies.

सोमवार Monday 25, सितम्बर September 2023

Venue: प्रेक्षागृह Auditorium

Time: 11:00 AM

सभी का स्वागत है All are welcome.