ICTS | INTERNATIONAL CENTRE for THEORETICAL SCIENCES

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

ICTS Astrophysics & Relativity Seminar

Title : Multipolar Magnetic Field of Millisecond Pulsars

Speaker : Anu Kundu (North-West University, Potchefstroom, South Africa)

Date : Thursday, 25th April 2024

Time : 3:30 PM (IST)

Abstract : The Neutron Star (NS) Interior Composition Explorer (NICER) has been operating aboard the International Space Station since 2017. Its ultimate aim is to constrain the equation of state of NSs with better precision. Recent studies have strongly indicated the presence of a multipolar magnetic field in the millisecond pulsars (MSPs) observed by NICER. We have implemented a complete, fully analytical, and generic multipolar magnetic field up to an octupole component to (i) model their thermal X-ray light curves, (ii) predict the morphology of surface emission hotspots, and (iii) constrain their mass and radii. In my talk, I will discuss the magnetic field equations, highlight the field configuration for different components, and present preliminary results for an MSP (PSR J0030+0451).

Venue : Online Seminar

Zoom link: https://icts-res-in.zoom.us/j/98364199737?pwd=aDNPMkpnMmp2bEd4d1U2cUtRQ0ZrZz09

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