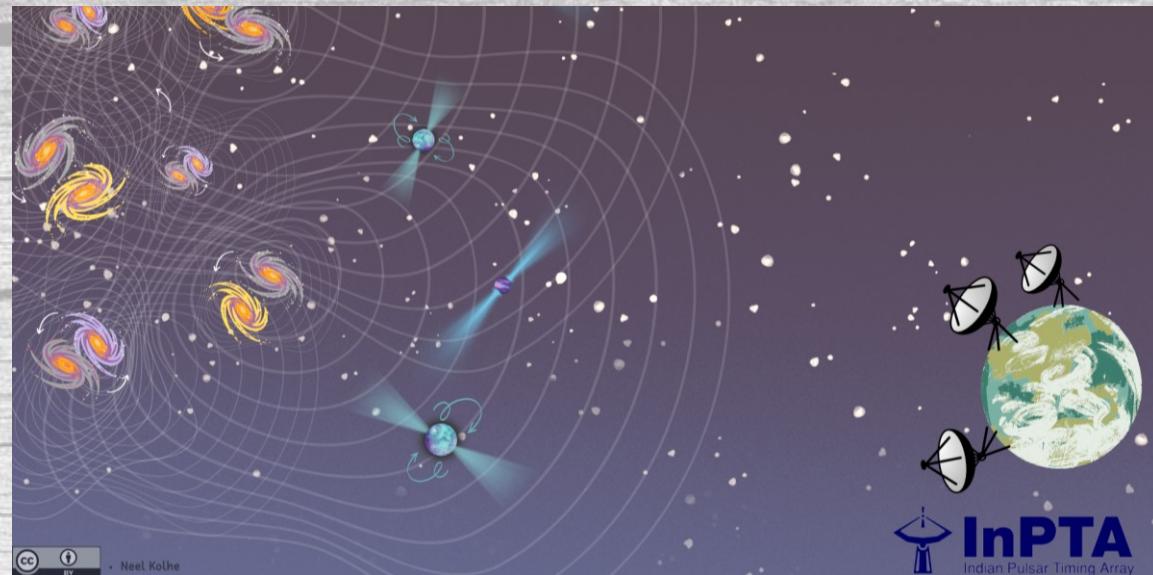


TATA Institute of Fundamental Research

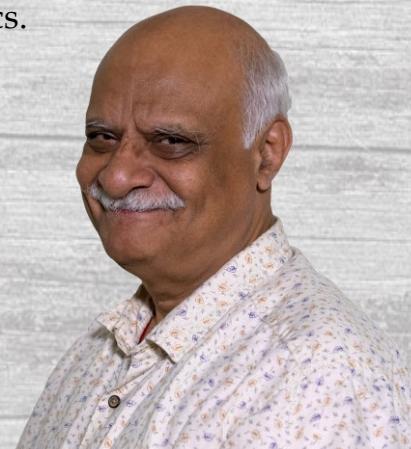
ASET Colloquium

The InPTA search for nano-Hertz gravitational waves using the upgraded GMRT - trials and tribulations



The Indian Pulsar Timing Array (InPTA) along with European Pulsar Timing Array, NANOGrav, Parkes Pulsar Timing Array, and a Chinese experiment announced the strongest hint yet for ultra-low frequency gravitational waves in the data stretching more than 2 decades. These results will be presented with a historical look at the role and evolution of the Ootucamund Radio telescope and the Giant Meterwave Radio Telescope, envisioned and conceived by Late Prof Govind Swarup and recently upgraded, which led to significant contributions in the results announced last month. The tuning of the instruments, which enabled the needed precision in our unique experiment, will be highlighted in the talk linking it to the requirement of the experiment apart from a discussion of challenges on the way. The presentation will conclude with future steps of the International Pulsar Timing Array (IPTA) experiment, where the InPTA is an important constituent and the promise of this new window in gravitational wave astrophysics.

Bhal Chandra Joshi obtained his Bachelor of Technology from IIT Roorkee in 1984. After a brief stint at Tata Motors, he obtained his Master of Technology from IIT Mumbai in 1992 and subsequently Master of Science and Doctor of Philosophy from the University of Pune in Physics and Astronomy. Later, he did a stint as a post-doctoral fellow at the University of Manchester, where he was involved in two large pulsar surveys, which amongst other pulsars discovered the unique double pulsar system. He joined NCRA-TIFR in 1993 and has been associated with the installation, commissioning, and subsequent activities relevant to servo systems of the GMRT antennas on one hand and with research in single pulse studies and precision pulsar timing with the GMRT and the ORT on the other hand as a faculty member at NCRA-TIFR for almost three decades. Additionally, he helped set up the Radio Physics Laboratory at NCRA for education and outreach amongst undergraduate physics and engineering students and conducted its programs for almost a decade. Many of these students subsequently joined doctoral studies at various institutes. In the last decade, he set up the Indian Pulsar Timing Array (InPTA) experiment along with his colleagues in NCRA and TIFR. The InPTA continues to make significant contributions to opening up ultra-low frequency window in gravitational astrophysics making use of the unique upgraded capabilities of NCRA-TIFR's premier radio astronomy facility, the upgraded GMRT.



Monday, 24th July 2023

**Lecture Theatre (AG 66)
TIFR, Homi Bhabha Road
Mumbai, 400005**

**YouTube Live Link
<https://youtube.com/live/Jn3Dn4185fo?feature=share>**

We are on social media!

**Facebook: facebook.com/aset.tifr,
YouTube: youtube.com/c/ASETForum,
Twitter: @aset_tifr
Web: tifr.res.in/~aset
Email: aset@tifr.res.in
Phone: 91-22-22782368**

