



THE CHINESE UNIVERSITY OF HONG KONG  
**Department of Physics**  
COLLOQUIUM

# Murmuring of the Fabric of Our Universe

by



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*Date: August 18, 2023 (Friday)*

*Time: 4:00 - 5:00 p.m.*

*Place: L2, Science Centre, CUHK*

(Light refreshments will be served at SCNB 1/F lobby from 3:30 to 3:50 p.m.)

ALL INTERESTED ARE WELCOME

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## Abstract

Very recent independent and coordinated investigations by the established Pulsar Timing Array collaborations strongly indicate that the universe is humming with gravitational radiation—a very low-frequency rumble that rhythmically stretches and compresses spacetime and the matter embedded in it. For these International Pulsar Timing Array-endorsed 3P+ efforts, the European and Indian Pulsar Timing Array consortia, namely EPTA and InPTA, pooled together their resources that included combining EPTA's second data release and InPTA's first data release. These efforts allowed us to probe and characterize the contributions of instrumental noise and interstellar propagation effects that are present in the various combinations of our pulsar data sets. The resulting detailed investigations reveal strong evidence for the presence of a stochastic gravitational wave background.

I will share the excitement of our InPTA collaboration which is an Indo-Japanese effort that employs niche abilities of India's upgraded Giant Metrewave Radio Telescope (uGMRT). Possible future directions that should be exciting to both astronomers and physicists, namely persistent multi-messenger GW astronomy, will be listed.

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