

NAOC SEMINAR

Time: 10:00am, Sep. 28(Monday), Location: A508 NAOC

The CHIME telescope: probing of Dark Energy, Fast Radio Bursts and the Gravitational Wave Background

Meiling Deng (Postdoc, Perimeter Institute for Theoretical Physics)



Abstract

As a wideband, large-field-of-view radio telescope, the Canadian Hydrogen Intensity Mapping Experiment (CHIME) is a revolutionary new telescope designed to provide answers to three major questions in cosmology and astrophysics. They are probing the nature of Dark Energy based on the 21cm intensity mapping technique, detecting large number of Fast Radio Bursts to understand their mysterious origin and pulsar timing to measure the Gravitational Wave Background.

In this talk, I will briefly present the CHIME telescope and the work I have done for it. My work mainly consists of three parts: the design of the wideband, dual-polarized antenna array; the simulation and calibration of the CHIME beam; the wideband mapping of the north celestial cap. The north celestial cap mapping is a pathfinder to map the whole northern hemisphere to help remove the strong galactic foreground contamination for CHIME's Dark Energy probing. It will also provide critical data for galactic science, such as the galaxy's wideband spectrum and the galactic magnetic field distribution.

Brief introduction:

Research interest:

21cm intensity mapping, FRB, radio galaxy survey, radio instrumentation

Education:

PhD in physics, University of British Columbia;

Master in astronomy, University of British Columbia;

Bachelor in applied physics, Huazhong University of Science and Technology.

All are welcome!