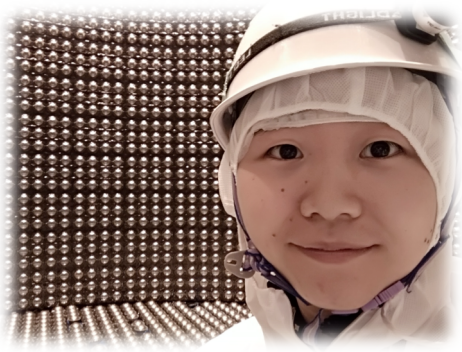
EXPERIMENTAL PHYSICS DIVISION SEMINAR

INSTITUTE OF HIGH ENERGY PHYSICS, CAS

Astrophysics at Super-Kamiokande



Speaker: Dr. Linyan Wan (Boston Univ.)

Host: Prof. Liangjian Wen

Time: 9am Wed 15th Jun 2022

Indico: indico.ihep.ac.cn/event/17034

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Abstract / 摘要:

Super-Kamiokande is a large water Cherenkov detector located in Japan. The 22.5 kton fiducial volume and the directionality from Cherenkov ring provides a unique probe into many astrophysics topics, including the diffused supernova neutrino backgrounds (DSNBs) and the boosted dark matter. DSNBs are neutrinos emitted from all of the past core-collapse supernovae since the onset of stellar formation. The detection of these neutrinos enables us to investigate the history of star formation, a key factor in cosmology, nucleosynthesis, and stellar evolution. Boosted dark matter is a well-motivated dark matter (DM) model with a small fraction of cold heavy DM boosted to relativistic energy. The relativistic dark matter can produce observable signals at dark matter experiments as well as large neutrino detectors such as Super-Kamiokande. In this seminar, I will cover the recent DSNB search (arxiv: 2109.11174) and a boosted dark matter search at Super-Kamiokande.

About the speaker / 报告人介绍:

Dr. Linyan Wan is a postdoctoral researcher at Boston University. She obtained her bachelor's degree and doctorate at Tsinghua University in 2013 and 2019. Her research interest focuses on astroparticle physics and physics beyond the standard model. She is the main analyzer of the diffused supernova neutrino search, the neutron anti-neutron search, and the boosted dark matter search at Super-Kamiokande.