



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
SEMINAR

Signatures of Afterglows from Light Dark Matter Boosted by Supernova Neutrinos in Large Underground Detectors

by

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Date: January 22, 2024 (Monday)

Time: 3:00 - 4:00 p.m.

Place: Rm 311, Science Centre North Block, CUHK

ALL INTERESTED ARE WELCOME

Abstract

Supernova neutrino boosted dark matter (SN ν BDM) and its afterglow effect stand as promising signatures for exploring beyond Standard Model (bSM) physics. The unique time-evolution feature of SN ν BDM offers a direct avenue for inferring DM mass, concurrently leading to substantial background reduction with increasing sensitivity. In this talk, I will expound upon the SN ν BDM framework applicable to next supernovae occurring anywhere in our galaxy, emphasizing its distinctive signatures that facilitate DM mass extraction. Additionally, I will present anticipated sensitivities on DM- ν and DM- e cross sections, derived from experiments including Super-Kamiokande, Hyper-Kamiokande, and DUNE, and compare these projected results with existing constraints.