

## Exploring Dark Matter Microphysics Through Neutron Star Collapse

*Monday, 30 September 2024 13:40 (20 minutes)*

Neutron stars (NS) situated in dark matter (DM)-rich environments can capture DM particles. The captured DM particles can thermalize, form a gravitationally bound core, and eventually form a black hole inside the NS. After accreting the surrounding material, the black hole can destroy the NS. In light of this, we constrain DM microphysics from the survival of the neutron star. In this talk, we will discuss the constraints on fermionic and bosonic dark matter particles utilizing existing neutron star data.

**Primary author:** MISHRA, Arvind Kumar (Nanjing Normal University, China)

**Co-authors:** Prof. LU, Chih-Ting (Nanjing Normal University, China); Prof. WU, Lei (Nanjing Normal University, China); Prof. LIU, Ning (Nanjing Normal University, China)

**Presenter:** MISHRA, Arvind Kumar (Nanjing Normal University, China)

**Session Classification:** Collider and Dark Matter