

Dark Heating of Neutron Stars : Electron Edition

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Dark matter can deposit energy in neutron stars and heat them to temperatures that could be detectable by upcoming infrared telescopes like James Webb Space Telescope (JWST). These observations have a potential to complement and outperform terrestrial direct detection in a large range of dark matter masses. Electrons are also present in neutron stars in significant proportion. Capture due to electrons can aid with the capture of leptophilic dark matter. Ultrarelativistic nature of these electrons make the calculation challenging. In this talk, I will discuss the formulation of this capture calculation and its interesting consequences for understanding the nature of dark matter.

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