THEORETICAL PHYSICS SEMINAR

Title: Fermionic dark matter and supernova SN1987A cooling

Speaker: Dr. Prasanta K Das, BITS-Goa

Date/Time/Venue: 21st March (Tuesday)/11:00AM/ Room No. 469

****
Tea will be served at 10:30am outside Room 469
****

ABSTRACT

Light dark matter(1 − 30 MeV) particles which can be pair produced in electron-positron annihilation e − e + −→ χ χ inside the supernova SN1987A core take away the energy released in the supernova SN1987A explosion. Using the Raffelt’s criteria on the energy loss rate and using the optical depth criteria on the free streaming of the dark matter fermion, we find that the lower bound on the scale Λ of the dark matter effective theory to be Λ ∼ 10 8 TeV for m χ = 30 MeV. We extend our study in q-deformed statistics scenario and study the impact of it on the scale Λ .

All are welcome to attend

//