THEORETICAL PHYSICS SEMINAR

Title: Mixed fermion dark matter, neutrino mass and collider signature
Speaker: Dr. Narendra Sahu, IIT Hyderabad
Date/Time/Venue: 29th Dec. (Thursday)/4:00 PM/ Room No. 469

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Tea will be served at 3:30pm outside Room 469
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ABSTRACT

The galaxy rotation curve, gravitational lensing and the existence of large scale structure imply that the present Universe is filled with a mysterious form of matter, called “dark matter (DM)”,which is about 27% (roughly 5 times of visible matter) of the total energy budget. Hitherto the existence of DM is obtained via its gravitational interaction in a large scale, starting from galaxy size. The main challenge at present is to probe the DM in a small scale, typically in an earth bound laboratory. The only information so far we know about DM is its relic density. However, the microscopic structure of DM is completely unknown. Unfortunately the standard model (SM) of particle physics, the best model that describes the fundamental interactions of visible matter, does not accommodate any such particle. In this talk we explore certain aspects of physics beyond the SM to include dark matter as well as non-zero neutrino mass, confirmed by oscillation experiments. In particular, we extend the SM by including a mixed singlet-doublet fermion dark matter and obtain the parameter space for testing the hypothesis at collider.

All are welcome to attend

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