THEORETICAL PHYSICS SEMINAR

Title: Two new avenues in dark matter indirect detection

Speaker: Dr. Ranjan Laha, SLAC and KIPAC, Stanford Univ.

Date/Time/Venue: 21st March (Tuesday)/2:30 PM/ Room No. 469

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

Indirect detection is one of the major ways to search for dark matter. However, backgrounds have been a major problem for these searches. In this talk, I will introduce two new techniques to distinguish signal from background. Firstly, I will show how telescopes with ~ 0.1% energy resolution can exploit the Doppler shift of sharp photon features arising from dark matter interactions and separate the signal from background. The technique is general and I will give an example of this search strategy with the 3.5 keV line. In the second half of my talk, I will show how limits from the searches for very high energy photons can be used to constrain dark matter interactions. Using this observable, I will constrain very heavy dark matter which is very difficult to constrain using other means.

All are welcome to attend