

SPACE AND COSMIC RAY PHYSICS SEMINAR

University of Maryland
Computer & Space Sciences Building, Rm 2400
4:30 PM Monday, May 10, 2004
Tea & cookies 4:00-4:30 PM

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Propagation of Cosmic Rays in the Galaxy

Astrophysics of cosmic rays and gamma rays depends very much on the quality of the data, which become increasingly accurate each year and therefore more constraining. While direct measurements of cosmic rays are possible in only one location on the outskirts of the Milky Way, the Galactic diffuse gamma-ray emission provides insights into the spectra of cosmic rays in distant locations, therefore complementing the local cosmic-ray studies. This connection, however, requires extensive modeling and is yet to be explored in detail. The GLAST mission, which is scheduled for launch in 2007 and is capable of measuring gamma-rays in the range 20 MeV - 300 GeV, will change the status quo dramatically. The detailed spectra and skymaps of the Galactic diffuse gamma-ray emission gathered by GLAST will require adequate theoretical models. The efforts will be rewarded by the wealth of information on cosmic ray spectra and fluxes in remote locations. In its turn, a detailed cosmic ray propagation model will provide a reliable basis for other studies such as search for dark matter signals in cosmic rays and diffuse gamma rays, spectrum and origin of the extragalactic gamma-ray emission, theories of nucleosynthesis and evolution of elements etc. In this talk, I will discuss what we can learn studying the cosmic ray propagation and diffuse gamma-ray emission.

Sponsored by: Department of Physics, University of Maryland, and the Institute for Physical Science and Technology, University of Maryland. For information call Matthew Hill at (301) 405-6209 or go to the following website: http://space.umd.edu/seminars/Spring_2004_Seminar.html (A PDF file of this abstract is available for download at this URL.)

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