

ASTRONOMY & ASTROPHYSICS SEMINAR

Speaker : Dr. Shailesh Kulkarni  
Harish-Chandra Research Institute, Allahabad

Title : *Quantum field theoretic effects with modified dispersion relations*

Date & Time : *March 15, 2011 (Tuesday) at 16.00 hrs*

Venue: *Lecture Theatre (AG-66)*

*Abstract:*

*As is well-known, free and massless fields are governed by the linear dispersion relation in Minkowski spacetime. It is possible that quantum gravitational effects may break Lorentz invariance at high energies, thereby leading to a modification of the dispersion relation beyond some fundamental scale. In this work, we study the response of a rotating monopole detector that is coupled linearly to a massless scalar field which is described by a non-linear dispersion relation in flat spacetime. Since it does not seem to be possible to evaluate the response of the rotating detector analytically, we resort to numerical computations. Further, we show that the response of the rotating detector can be computed exactly even when it is coupled to a field that is governed by a non-linear dispersion relation.*