

LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

On December 6, 2007 at 2:30 pm, L. Maccione from SISSA, Trieste will give a seminar entitled:

“Lessons on Lorentz Invariance Violation by the Crab Nebula: LIV modelling of astrophysical objects and constraints”

Abstract:

High energy astrophysics observations played in the recent past a crucial role in casting constraints on Planck suppressed Lorentz Violations (LV) which are predicted in some quantum gravity scenarios. In particular the corresponding modifications of the dispersion relations and reaction rates in quantum electrodynamics can affect the electromagnetic output of astrophysical objects by allowing new reactions as well as by strongly affecting normally allowed ones. So far, however, the whole information provided by multi wavelength observations of astrophysical sources has never been fully exploited. We do this by performing a full and self-consistent computation of the broad band spectrum of the Crab Nebula in the context of QED with $O(E/M)$ Lorentz violations and comparing our results with present-day observations. This study in the end allows us to cast stringent constraints which are far more robust than the previous ones.

(“B. Rossi” room)