LABORATORI NAZIONALI DEL GRAN SASSO

SEMINAR ANNOUNCEMENT

On **August 7, 2008**, at **3:00** pm, **Merab Gogberashvili** from **Andronikashvili Institute of Physics & Javakhishvili State University (Tbilisi, Georgia)** will give a seminar entitled:

"Octonionic Geometry and symmetries in particle physics"

Abstract

Geometrical applications of normed split algebras is considered, regarding the origin of the Lorentz invariance and internal symmetries. Physical signals we describe by split octonions. The eight real parameters of octonions can be interpreted as space-time coordinates, energy and momentum. Both the velocity of light and Planck's constant have a similar geometrical meaning and arise from the condition of positive definiteness of the norm. Generalized Lorentz factor contains extra "quantum" terms and in the limit when Planck's constant goes to zero transforms to the standard one. The non-associativity of octonions is connected with the appearing of time irreversibility and fundamental probabilities in physics.

("B. Rossi" room)