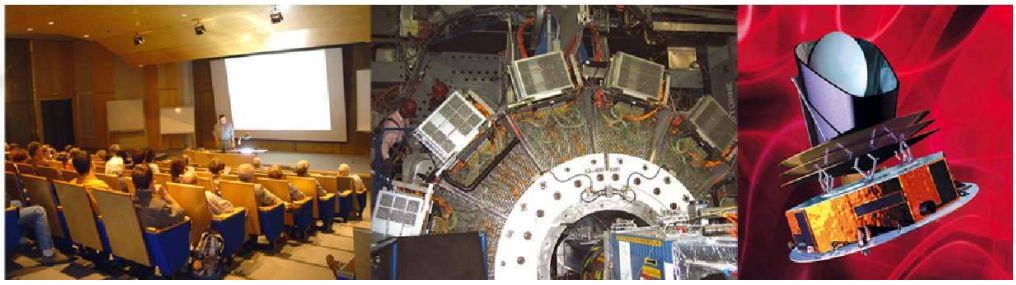
LABORATOIRE DE L'ACCÉLÉRATEUR LINÉAIRE



Séminaire du Laboratoire de l'Accélérateur Linéaire

Cristina Volpe

IPNO

Mardi 7 Décembre 2010 à 11 :00

Recent advances in neutrino (astro)physics

The discovery of the neutrino oscillation phenomenon has brought a breakthrough in our knowledge of neutrino properties, with an impressive impact in various fields, from high energy physics to astrophysics and cosmology. Neutrino oscillations turn out to be essential when neutrinos propagate in astrophysical environments, e.g. in our Sun, in core-collapse supernovae, in accretion-disks around black-holes, as well as in the early Universe. In this talk I will mention where we stand in this domain and focus on the recent progress in our understanding of neutrino flavour conversion in media. I will first remind the case of our Sun and the discovery of the Mikheev-Smirnov-Wolfenstein effect. Then I will explain the important theoretical progress ongoing in core-collapse supernovae. Indeed, in the last few years, the increase in the complexity of the models for the neutrino flavour conversion (inclusion of the neutrino-neutrino interaction, of shock waves and also of turbulence) have shown that completely new flavour conversion phenomena carn arise. Some of the implications for the observations, both in running and future detectors, and on (r-process) nucleosynthesis will be discussed. Finally the search for possible leptonic CP violation effects in massive stars and the Early Universe will be described.

Auditorium Pierre Lehmann du LAL - Bât. 200, Orsay

Thé et café seront servis 1/4 h avant le séminaire

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