CERN Colloquium

SPEAKER: Prof. François Bouchet (Institut d'Astrophysique de Paris)

TITLE: **Cosmology with the Planck Satellite**

DATE: Thu 01/10/2015 16:30

PLACE: Main Auditorium

ABSTRACT

Sketched out in 1992, selected by ESA in 1996, and launched in 2009, the Planck satellite was shut off in 2013, after a measuring mission that exceeded all expectations. The Planck collaboration delivered a first set of cosmological data and results in March 21st 2013, and the full set in February 2015. Part of the data delivery is a "definitive" map of the anisotropies of the Cosmic Microwave Background (CMB), its angular power spectrum together with their full statistical characterisation. The 2015 delivery also includes pioneering polarisation data.

The temperature anisotropy map displays minuscule variations as a function of the observing direction, of rms ~100microK, of the fossil radiation around its mean temperature of 2.725K. Other maps reveal the CMB polarisation. The anisotropies are the imprint of the primordial fluctuations which initiated the growth of the large scale structures of the Universe, as transformed by their evolution, in particular during the first 370 000 years, as well as finer effects due to the propagation through the late evolving Universe of their photon signature. The polarisation is another imprint whose theoretical implications can then be confronted with those derived from the temperature field. I will describe the results we obtained far from temperature and polarisation data, both in terms of content of the universe and of characteristics of the primordial fluctuations.

Organised by: Wolfgang LERCHE PH/TH .....**Tea and coffee will be served at 16h00**