

SÉMINAIRE

**Jour et heure
inhabituels**

Jeudi 11 mai 2006 à 11h00

O.Doré (Université de Toronto)

Mapping the polarized sky with WMAP: methods and cosmological implications

The Wilkinson Microwave Anisotropy Probe (WMAP) is a NASA satellite designed to produce high resolution full sky maps of the temperature and polarization of the cosmic microwave background (CMB). The accurate characterization of the fluctuations in the CMB contains exquisite information about the global structure, composition, and evolution of the universe. Relying on the first three years of observations, WMAP has now measured these fluctuations with unprecedented accuracy. I will illustrate how a greater signal-to-noise in the temperature measurement but also a new large scale polarization signal detection have significantly sharpened our cosmological interpretation.

A simple six-parameters cosmological model (flat LCDM), consisting of baryons, dark matter, a cosmological constant, initial perturbation spectrum amplitude and slope, and optical depth is an excellent fit to the WMAP data, as well as a host of other astronomical experiments.

The new WMAP data also hint at a small deviation from scale invariance in the primordial fluctuation power spectrum, a key prediction of inflation. If confirmed this would strengthen our confidence in the inflationary scenario and allow detailed model testing. Besides, the combination of WMAP data and other astronomical data places even stronger constraints on the density of dark matter and dark energy, the properties of neutrinos, the properties of dark energy and the geometry of the Universe

Salle André Berthelot, bât. 141

Le café sera servi 15 minutes avant

NB : La présentation d'une carte d'identité ou d'un passeport est exigée à l'entrée du centre. Tous les auditeurs extérieurs sont priés de prévenir à l'avance de leur visite Laure Reuter, tél. 01 69 08 23 50 (U.E. : délai de 24h, hors U.E. : délai de 4 jours).