



ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

PHYSICS COLLOQUIUM

Thursday, 13 June 2013

17:00 -18:00

3rd Floor Seminar Room

"Results from Planck"

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Abstract

Since its launch in May 2009, Planck has been surveying the sky in nine frequency bands spanning 30 to 857 GHz. Its combination of sensitivity, angular resolution and frequency coverage produces an extremely rich data set for a wide array of science, from fundamental cosmology with the primary cosmic microwave background (CMB) anisotropies to the large-scale distribution of light and dark matter since recombination. Our results support the standard spatially flat cosmological model with a cosmological constant and Gaussian matter perturbations to a precision never before attained. This is a remarkable statement of the simplicity of the universe. The Planck parameters differ slightly, but notably, from the WMAP cosmology, and the high precision has unveiled mild tension with some astrophysical measurements. In particular, Planck prefers a high matter density and low Hubble constant. Planck also provides important new results on the evolution of the universe after recombination through observations of galaxy clusters, gravitational lensing and of the light emitted by early star forming galaxies. Of specific note is an intriguing tension between results from analysis of the primary CMB anisotropies and those from the cluster redshift distribution, a consequence of the high matter density.