

Planck: Looking back to the dawn of time

The cosmic microwave background (CMB) is the first light released in the early universe and represents a pillar of our understanding of cosmic evolution. Since its first discovery in 1965, a number of sub-orbital CMB observations and the COBE and WMAP satellites have greatly enhanced our insight into cosmic dynamics and composition. The Planck satellite, to be launched within 2008, is designed to produce the next step forward with a set of 9 full-sky maps in the frequency range 30-850 GHz with an unprecedented combination of sensitivity, angular resolution and monitoring of astrophysical foregrounds. All channels from 30 GHz to 350 GHz are polarisation sensitive. Control of potential systematic effects is a major driver of the instruments design and mission plan. Two complementary instruments cover the frequency spectrum, using coherent radiometers based on cryogenic HEMTs at low frequencies and 0.1K spider-web bolometers at high frequencies. The two instruments have recently completed their on-ground cryogenic calibration campaign and are now integrated in the Planck satellite. An overview of the Planck scientific objectives, instrument design and mission plan will be presented.