

The Universe according to Planck

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The Planck satellite has completed its mission to map the entire microwave sky at nine separate frequencies. Data in several forms was made publicly available in March 2013, based on 2 full surveys, resulting in more than 80 papers from the Planck team, on many different aspects of the cosmic microwave background (CMB). We have been able to learn in detail about the physics of the interstellar medium in our Galaxy, and to remove this foreground emission in order to extract the cosmological information from the background radiation. Planck's measurements lead to an improved understanding of the basic model which describes the Universe on the very largest scales. In particular, a 6 parameter model fits the CMB data very well, with no strong evidence for extensions to that model. There are constraints on inflationary models, neutrino physics and many other theoretical ideas. New cosmological probes include CMB lensing, CMB-extracted clusters of galaxies and constraints on large-scale velocities. The Planck Team is preparing for a further data release later in 2014, based on the full mission data, including the additional polarization dimension.