

Vulcano Workshop 2014 - Frontier Objects in Astrophysics and Particle Physics



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Cosmic Microwave Background from ground-based and space experiments

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The tiny temperature and polarization anisotropies of the cosmic microwave background (CMB) radiation encode a wealth of information about our Universe. The CMB anisotropies have been the target of many experiments in the past twenty years, starting with COBE's observations of the large-scale temperature fluctuations in the early 90s.

In 2013, the Planck satellite provided the most accurate measurements of the CMB temperature power spectrum to date, while, only a few weeks ago, the BICEP2 collaboration detected a B-mode polarization pattern at degree angular scales, of possibly primordial origin. Further advancements from the observational point of view are expected in the near future, as Planck will be releasing, at the end of this year, the full mission data (including polarization), while other experiments, specifically designed to target polarization, are either already operational or will be soon.

In my talk I will give an overview of current ground-based and space CMB experiments, and briefly discuss the theoretical implications of their observations, as well as some open questions. Finally, I will review the status of incoming and future experiments.

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