COLLOQUIUM

Physics and Cosmology with the Cosmic Microwave Background

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May 13, 2015

4:00 p.m. (coffee @ 3:30)

The study of the cosmic microwave background (CMB) has driven spectacular advances in our understanding of the origin, make up and evolution of our universe. We now have a standard cosmological model, ΛCDM, that fits all the cosmological data with only six parameters, although there are some tensions that may hint at that cracks in the model. Far from being the last word in cosmology, the model points to exciting times ahead using the CMB to explore new physics, i.e., inflation, dark matter, dark energy, neutrino masses and possible additional relativistic species, or dark radiation. This talk will review the current status and near term plans for CMB measurements, with emphasis on the South Pole Telescope, and discuss the plans for the next generation experimental program, CMB-S4

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