

CMB measurements and prospects

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The next frontier for measurements of the cosmic microwave background (CMB) will be to characterize is polarization, which will give several new windows into the physics of the early Universe. On degree angular scales, the amplitude of the B-mode polarization gives a constraint on the energy scale of cosmic Inflation, with measurements in the next several years improving constraints by an order of magnitude. On intermediate angular scales, the CMB polarization anisotropy gives constraints on a range of physics, including the abundance of light relic particle species and the mass of the neutrino. Comparing the allowed volume of likelihood space for cosmological parameters, these same CMB measurements will reduce this volume by over a factor of 100 over the next few years. I will describe the experimental landscape pushing these new frontiers of CMB measurements, focusing on the South Pole Telescope (SPT-3G, SPT-3G+) and the BICEP Array (BA) experiment, which combined form the South Pole Observatory (SPO), and also describe recent and upcoming results.

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