

Abstract Submitted
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CMB B-mode Polarization Measurements and constraints on Primordial Gravitational Waves from the BICEP/Keck Program at South Pole JOHN KOVAC, BICEP/Keck Collaboration — The BICEP/Keck Array cosmic microwave background (CMB) polarization experiments located at the South Pole are a series of small-aperture refracting telescopes designed to probe the degree-scale B-mode signature of primordial gravitational waves. These highly-targeted experiments have produced the world's deepest maps of CMB polarization, leading to the most stringent constraints on the tensor-to-scalar ratio to date: $r < 0.09$ from B-modes alone, and $r < 0.07$ in combination with other datasets. These limits are rapidly improving with ongoing measurements at the multiple frequencies needed to separate Galactic foregrounds from the CMB, and in combination with higher-resolution experiments to remove B-modes induced by gravitational lensing. I will review the current status of measurements and results, and will discuss the challenges that will be confronted as measurements reach sensitivities to primordial gravitational waves at a level $r < 0.01$ and below within the next several years.

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