

Journal Club

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Cosmology from great heights: measuring CMB polarization from the Chilean Andes and a stratospheric balloon with POLARBEAR and SPIDER



Measurements of cosmic microwave background (CMB) polarization have recently advanced into an era of characterization. First detections of B-mode power on the sky have recently been made on large and small angular scales, and several experiments are now pushing the frontiers of sensitivity to enable new cosmological constraints on neutrino masses, dark energy, and the nature of inflation. I discuss two experiments I'm involved in: SPIDER and POLARBEAR. Together, these experiments will characterize the CMB across a range of angular scales and observational frequencies, enabling characterization of foregrounds on large scales and gravitational lensing on small scales to accurately determine the contribution of B-modes due to inflationary gravitational waves. I discuss the performance of the balloon-borne SPIDER instrument during its recent Antarctic flight and results from POLARBEAR's first season of observations from the Atacama Desert. I also discuss future plans for both collaborations.



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301 Physical Sciences Bldg.