

# Measuring Gravitational Lensing of the CMB to Probe Neutrino Properties, Dark Energy, and Primordial Gravitational Waves

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4:00 p.m. - Wilson Hall, One West

In this talk I will discuss the next frontier of research on the Cosmic Microwave Background (CMB): precisely measuring the gravitational lensing of the CMB. This CMB lensing signal encodes a wealth of statistical information about the large-scale structure mass distribution, which is sensitive to the total mass of the neutrinos as well as dark energy properties. CMB lensing also obscures our view of the primordial Universe, limiting our ability to constrain inflationary signals. By removing this lensing “noise”, any inflationary signatures would be brought into sharper focus. I will discuss recent progress in probing neutrino mass and dark energy, as well as in “de-lensing” the CMB, using data from the Atacama Cosmology Telescope Polarimeter (ACTPol). I will also discuss future forecasts that can be expected from the near future AdvACT, Simons Observatory, and CMB-S4 experiments.