

Abstract Submitted
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CMB polarization low-frequency noise level reduction enabled by the CLASS telescope polarization modulators JOSEPH CLEARY, Johns Hopkins University, COSMOLOGY LARGE ANGULAR SCALE SURVEYOR (CLASS) COLLABORATION — The Cosmology Large Angular Scale Surveyor (CLASS) is a telescope array that measures the polarization of the cosmic microwave background (CMB) on the largest angular scales. Observing at frequency bands centered at 40, 90, 150, and 220 GHz, CLASS aims to constrain the inflationary tensor-to-scalar ratio and optical depth to reionization. These large-scale observations are enabled by a novel, front-end modulator technology called a Variable-delay Polarization Modulator (VPM). A VPM consists of a wire grid in front of a moveable mirror. Varying the grid-mirror separation modulates linear and circular polarization incident on the VPM. This creates a lock-in style measurement and separates sky polarization from polarization internal to the telescope. Here, we demonstrate the ability of the VPM to reduce the observed noise level at large angular scales.

Joseph Cleary
Johns Hopkins University

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