Contributed Talk

The Keck Array: Dectector Upgrades and Testing Results from the South Pole

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The Keck Array polarimeter is a collection of five mm-wavelength refractor telescopes, optimized to detect nano-Kelvin fluctuations in the Cosmic Microwave Background on degree angular-scales. The instrument consists of 1280 dual-polarization planar phased-array antennas, each coupled to a pair of TES bolometers (for a total of 2560 channels). Now beginning its third year of observations, the instrument has benefited from significant improvements in both the antenna design and fabrication techniques, leading to higher optical efficiencies, and better control of beam systematics. These improvements are of particular importance for ground-based instruments, where atmospheric temperature fluctuations are a significant source of noise for pixels with non-trival temperature to polarization leakage. This talk will briefly review the recent advances in detector fabrication and present testing results obtained from the most recent upgrade.