

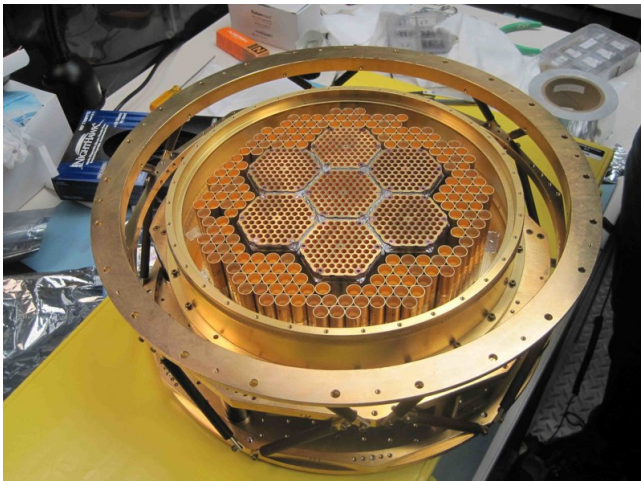
LEPP JOURNAL CLUB

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Measuring the Cosmic Microwave Background Polarization with SPTpol

A new polarization-sensitive camera, SPTpol, designed to measure the polarization of the cosmic microwave background (CMB), was deployed on the 10-meter South Pole Telescope in January 2012. The goal of the project is to exploit the high resolution of the telescope (1 arcminute beam) and the high sensitivity afforded by the 1536-detector camera to characterize the B-mode polarization induced by the gravitational lensing of the primordial E-mode CMB polarization, as well as to detect or set an upper limit on the level of the B-mode polarization from inflationary gravitational waves. The lensing B-modes will be used to constrain the sum of the neutrino masses by measuring large scale structure, while the inflationary B-modes are sensitive to the energy scale of inflation. I will discuss the development of the SPTpol camera including the cryogenic design and the transition edge sensor (TES) detectors developed at NIST and Argonne National Labs, as well as the science goals and status of the ongoing SPTpol program.



Friday
January 25, 4:00pm
301 Physical Sciences Building
(Refreshments, 3:45pm)