

Physics Colloquium  
Monday October 16th, 2006  
4:15 PM 428 Pupin Hall  
Professor Amber Miller of  
Columbia University Physics Department

*“Peeking in Ancient Holes and Seeking the Holy Grail”*

**Abstract:** The Cosmic Microwave Background (CMB) consists of a bath of photons emitted when the universe was 380,000 years old. Carrying the imprint of primordial fluctuations that seeded the formation of structure in the universe, the CMB is one of the most valuable known tools for studying the early universe. In our modern, post WMAP era, the utility of studying temperature anisotropies in the CMB is clear and much of the work has been done. I will describe two exciting new directions in which the field is currently heading: small-scale secondary CMB anisotropy and CMB polarization anisotropy. In this context, I will discuss preliminary results from our small-scale secondary anisotropy experiment, the Sunyaev-Zel'dovich Array (SZA). I will also briefly describe our two upcoming CMB polarization experiments, the Q U Imaging Experiment (QUIET) and the E B Experiment (EBEX).

