JOINT TUFTS/MIT COSMOLOGY SEMINAR

Current challenges in CMB cosmology

Renee Hlozek

Princeton

CMB cosmology is currently undergoing a data-rich epoch, with measurements on small scales from experiments like the Atacama Cosmology Telescope (ACT) and it polarisation instrument, ACTPol, adding to measurements on larger scales by Planck, WMAP and most recently BICEP. I will contextualise the measurements and present constraints on parameters from the observations at 148 GHz and 217 GHz respectively by ACT from three years of observations. I'll discuss my recent re-analysis of data from the 2013 data release by the Planck satellite, where we found that the 217GHz x 217GHz detector set spectrum used in the Planck analysis is responsible for some of the tension between the Planck parameters and other astronomical measurements. I'll show evidence suggesting residual systematics in the detector set spectra used in the Planck likelihood code, and discuss how the picture has changed with updated Planck data, and put things in context with the BICEP results. I'll highlight the recent ACTPol results, and outline how upcoming information from various cosmological probes will open up the window on the epoch of reionisation; our least explored epoch to date.

Tuesday, April 28, 2015, 2:30 pm

Cosman Seminar Room

Center for Theoretical Physics

Building 6C, Room 6C-442

Massachusetts Institute of Technology

Refreshments at 2:00 in the same room