Stanford University
Department of Statistics

DEPARTMENTAL SEMINAR

4:15pm, Tuesday, November 27, 2012
Sequoia Hall Room 200
Cookies served at 3:45pm, 1st floor Lounge.

Speaker: Ethan Anderes, UC Davis

Title: Shrinking the quadratic estimator of dark matter from the cosmic microwave background

Abstract:
Recent data from two ground based telescopes, ACT and SPT, have resulted in the first direct detection of dark matter lensing of the cosmic microwave background (CMB) from CMB measurements alone. In the coming years, the data on the CMB from Plank and upcoming experiments ACTpol and SPTpol will begin probing this lensing at much greater resolution and is projected to have a large impact on the understanding of the origins of our universe. In this talk we will give a review of the state-of-the-art estimator of dark matter lensing, the quadratic estimator developed by Hu and Okomoto (2001, 2002), and present a new regression characterization of the estimator which motivates a modification by an adaptive Wiener filter which uses the robust Bayesian techniques developed by Berger (1980) and Strawderman (1971).