



## PHYSICS AND ASTRONOMY SEMINAR

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# “Robust Strong Lensing Time Delay Estimation”

### Abstract

Strong gravitational lensing of time-variable sources such as quasars and supernovae creates observable time delays between the multiple images. Time delays can provide a powerful cosmographic probe through the "time delay distance" involving the ratio of lens, source, and lens-source distances. However, lightcurves of lensed images have measurement gaps, noise, systematics such as microlensing from substructure along an image line of sight, and no a priori functional model, making robust time delay estimation challenging.

I describe how we use Gaussian process techniques for blind reconstruction of time delays and reduction in uncertainties for real data. I will also briefly describe some other interesting applications of Gaussian processes in cosmology.

Tuesday, July 16, 2013

1:30 p.m.

Elliott Building

Room 060