BOSTON UNIVERSITY

Astrophysics Seminar
Monday, January 26, 2015

The Troubles with Galaxy-Galaxy Lensing

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3:15 pm
Refreshments
CAS Room 500

3:30 pm
Seminar
CAS Room 502

Abstract:

Galaxy-galaxy lensing is a type of gravitational lensing in which background galaxies are systematically lensed by foreground galaxies at a very weak level (image distortions of less than half a percent). In most galaxy-galaxy lensing data sets, each background galaxy has been lensed at a comparable level by two or more foreground galaxies, an effect known as "multiple deflections". The first statistically significant detection of galaxy-galaxy lensing was made almost 20 years ago and, at the time, it was met with a great deal of skepticism from the lensing community. Galaxy-galaxy lensing has since evolved into a tremendously useful tool for mapping the dark matter around galaxies, but it is not without its issues. Here I will present results of theoretical studies that demonstrate the truly critical importance of taking all of the multiple deflections into account when using observations of galaxy-galaxy lensing to constrain the shapes of the dark matter halos that surround the lens galaxies. I will also present preliminary results of theoretical studies in which the goal is to assess how well the observable galaxy-galaxy lensing signal can be directly "converted" into a measure of the surface mass density of the lens galaxies when a significant number of multiple deflections have occurred.

Next Week

- *Colin Bischoff*
  Center for Astrophysics
- Detection of B-mode Polarization at Degree Angular Scales using BICEP2

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