School of Physics
School Colloquia Series

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Weak Gravitational Lensing

Abstract:

Weak gravitational lensing by the cosmic-large scale structure refers to tiny changes in the apparent shapes of galaxies due to the distortion of the light bundles by gravitational fields. In my talk, I will give an introduction to the theory of gravitational lensing, explain how images of galaxies are affected, how this yields information about the cosmological model and the properties of gravity on large scales, and in what way the image distortions are statistically quantified. Then, I will discuss the problem of intrinsic alignments in weak lensing data, in particular how spiral and elliptical galaxies have intrinsically correlated shapes as a consequence of their formation history and their gravitational interaction.