

23. January 2019

GRK Colloquium – ZARM, University of Bremen

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Weak lensing and intrinsic alignments of galaxies

Abstract

The weak gravitational lensing signal generated by the cosmic large-scale structure contains information about the initial conditions of structure formation, the dynamics of the cosmological fluids and the theory of gravity. Because it is “only” based on relativity, the physics behind gravitational lensing is conceptually simple (but technically difficult). I’d like to show in my talk how the weak lensing signal can be used to constrain models of gravity and will extensively discuss systematic effects like intrinsic shape correlations of galaxies, which have a major impact on cosmological inference.