

Colloquium

SFB 956

Conditions and Impact of Star Formation

18 June 2018

Monday 3:00 pm

Physikalische Institute Köln

Lecture Hall III

Zülpicher Straße 77 | 50937 Köln

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Weak Gravitational Lensing - A Tool to Study Cosmology and Galaxy Astrophysics

Gravitational lensing represents a unique tool to study the dark Universe. In the weak lensing regime small distortions in the images of galaxies caused by the large-scale structure can be detected over the whole sky. Measuring these coherent distortions yields cosmological insights complementary to other probes like the cosmic microwave background (CMB). In this talk I will first briefly review the history of weak lensing measurements and then concentrate on recent results from the ongoing European Kilo Degree Survey (KiDS). These measurements show a mild tension with CMB measurements from the Planck mission when the standard cosmological model is assumed. Possible solutions to this discrepancy using extensions to the standard model of cosmology as well as poorly constrained astrophysical mechanisms like baryon feedback will be discussed. I will present how cross-correlating weak lensing observations with data at other wavelengths sheds light on these mechanisms, enhances our understanding of feedback processes, and - at the same time - leads to complementary and more robust cosmological conclusions.

