Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG
FAKULTÄT FÜR PHYSIK UND ASTRONOMIE
- DEKANAT -

PHYSIKALISCHES KOLLOQUIUM

Sommersemester 2025

Das Kolloquium findet (soweit nicht anders angegeben) **jeweils montags um 14:15 Uhr in Präsenz im Röntgen-Hörsaal** des Physikalischen Instituts, Hubland Campus Süd, Universität Würzburg **und online via Zoom statt**.
Zugangsdaten siehe https://www.physik.uni-wuerzburg.de/aktuelles/veranstaltungen-aus-der-physik/physikalisches-kolloquium/

07.07.2025

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Probing the Nature of Dark Matter with Strong Gravitational Lensin

Abstract

The Cold Dark Matter model for structure formation is currently the most successful at reproducing many observations, but it remains largely untested in the non-linear sub-galactic regime. A clear prediction of this model is that a significant number of low-mass haloes should populate any galaxy and its line of sight. As most of these objects are expected to be completely dark, strong gravitational lensing provides a unique channel to detect them and determine the properties of dark matter by constraining the halo-mass function at the low-mass end.

In this talk, I will review the current status of the field and present the latest observational constraints on the halo mass function. I will discuss the most significant challenges in robustly constraining the properties of dark matter with strong gravitational lensing observations, particularly focusing on the main sources of systematic errors from both the observational and theoretical sides of the problem.

I will then focus on the expected role of existing and upcoming observing facilities such as Euclid, ELTs, SKA, and the ngVLA in this field.

Für die Dozentinnen bzw. Dozenten der Fakultät

Prof. Dr. Hankiewicz, Prof. Dr. Hinkov, Dr. Meyer, Dr. Feichtner, Hr. Baumbach