

S E M I N A R



Daniel Johnson
(CNRS, University of
Montpellier, France)

Date:

Thursday, 13 February 2025

Time:

12h15-13h15 SAST

Venues:

- **NITheCS Seminar Room**
University of KwaZulu-Natal
Westville Campus
3rd Floor, H-Block,
School of Chemistry and Physics
- **Online**

WHO SHOULD ATTEND?

This talk is intended to be accessible to postgraduate students. All are welcome!

ENQUIRIES:

Email Neli Mncube:
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Strong lensing cosmology and the line of sight

ABSTRACT:

Strong gravitational lensing is a powerful observational tool in astrophysics and cosmology, which has been used to study the mass and light properties of galaxies and quasars, the scales and distributions of dark matter subhaloes, and the expansion history of the Universe. Matter inhomogeneities between the observer, lens galaxy, and source galaxy can complicate strong lensing cosmology, but also offer novel competitive constraints on the matter distribution of the universe. I will introduce strong lensing as an observational tool, briefly illustrate the consequences of the line of sight for measurements of the Hubble constant and the dark energy equation of state, and then present the use of the strong lensing line-of-sight shear as a complementary observable in weak lensing surveys.

Daniel Johnson is a PhD candidate at the CNRS at the University of Montpellier, France, working under the supervision of Pierre Fleury and Julien Larena. His research focuses on the influence of matter along the line of sight in strong gravitational lensing and its impact on observational cosmology. He has written some papers about these effects as an additional source of uncertainty when measuring H_0 and the dark energy equation of state, but his main work has been the use of the strong lensing line of sight as a new observable for constraining Ω_m and σ_8 .

Prior to his PhD, he completed a Master's thesis with Lucia Marchetti and an Honours project with Anslyn John, both at the University of Cape Town.

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