

S E M I N A R



Prof Wilke van der Schee
(Utrecht University, Netherlands)

Date:

Tuesday, 21 July 2026

Time:

13h15-14h15 SAST

Venues:

- Honours Presentation Room P213,
2nd floor, School of Physics
East Campus
University of the Witwatersrand
- Online

Who should attend?

All are welcome!

Enquiries:

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Holographic bubble nucleation in astrophysics or the early universe

ABSTRACT:

First-order phase transitions in the early Universe or inside neutron stars could leave observable imprints, such as a stochastic gravitational wave background or characteristic features in merger waveforms. A major source of uncertainty in predicting these signals is the nucleation of critical bubbles within the metastable phase. I will begin with a brief introduction, including how this problem is addressed in effective field theory. The talk then features a recent example of bubble nucleation in holography. While perhaps not a realistic model of our own Universe, it permits a complete microscopic construction of the bubbles, which can be compared quantitatively with the effective field theory approach.

Reference: Carlos Hoyos, David Mateos, Wilke van der Schee, and Javier G. Subils, *Microscopic Description of Critical Bubbles*, [arXiv:2601.09787](https://arxiv.org/abs/2601.09787).

Wilke van der Schee is a Dutch theoretical physicist who serves as an Assistant Professor at Utrecht University and works as a staff researcher at CERN. His research primarily bridges the fields of high-energy nuclear physics, string theory, and general relativity. He is widely recognized for applying advanced theoretical concepts like holographic duality to simulate and understand extreme states of matter.

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