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S E M I N A R

Global analyses of ultrarelativistic heavy ions in the LHC era

Prof Wilke van der Schee
(Utrecht University, Netherlands, & CERN)

Date:
Tuesday, 5 August 2025

Time:
13h15-14h15 SAST

Venues:
- P213, Physics Building, East Campus, WITS
- Online

Who should attend?
All are welcome!

Enquiries:
Email Farah-Naaz Samuels:
farah-naaz.samuels@wits.ac.za

ABSTRACT:
Heavy ion collisions quickly form a droplet of quark–gluon plasma (QGP) with a remarkably small viscosity. This smallest and hottest fluid on earth can only be understood by studying a multitude of physical stages, including a far-from-equilibrium colliding stage, a stage described by viscous relativistic hydrodynamics and as a gas of hadrons that can finally be detected by all ALICE, ATLAS, CMS and LHCb experiments at CERN. Linking these phases I will describe how a global Bayesian analysis can leverage a wide variety of such experimental data to gain knowledge about the QGPs intrinsic properties, in particular highlighting how we have recently incorporated insights coming from holography.
Next, I will present an outlook into exciting collisions of O-16 and Ne-20 that have just been performed this July at the LHC. It will be exciting if these light ions behave hydrodynamically in a way similar to the heavy ion collisions and if we can see the characteristic shape differences. Finally, I will show a curiosity where both O-16 and Ne-20 can break up causing deuteron or He-4 to circulate in the LHC and potentially then collide again.

Wilke van der Schee is an Assistant Professor at Utrecht University in the Netherlands.

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