

## **Exploiting galaxy-21cm synergies to shed light on the Epoch of Reionization (Pratika Dayal)**

*Monday, 9 September 2019 17:05 (18 minutes)*

Over the next decade a number of facilities, that aim to detect neutral hydrogen in the Epoch of Reionization (EoR) through its 21cm spin-flip transition, will be crucial in shedding light on the propagation of ionized regions. However, establishing the veracity of the 21cm signal and understanding the global sources and topology of reionization will require combining 21cm data with that from the underlying galaxy population observed by next-generation telescopes such as Euclid and the E-ELT. I will start by introducing the reionization process and detail the reasons for which its history and topology remain debated. I will then highlight the crucial and urgent synergies required between 21cm and galaxy experiments to understand the physics of the EoR that remains a crucial frontier in the field of astrophysics and physical cosmology. Finally, I will show how the 21cm signal from cosmic dawn can be used to constrain the (warm) nature of dark matter itself.

**Primary author:** Dr PRATIKA, Dayal (Kapteyn Institute)

**Track Classification:** Synergies