

What the 21cm signal can tell us about cosmology, astrophysics, and the Epoch of Reionisation

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The brightness temperature of the 21cm spectral line of neutral hydrogen is directly proportional to the cosmic baryon density and the neutral fraction of the IGM. By measuring this signal at different frequencies, one can map the IGM at any given redshift, and follow the formation and evolution of cosmic structures. As such, the 21cm signal is an exceptional tracer of both cosmology and the astrophysics of galaxies during the Epoch of Reionisation, which saw the first light sources in the Universe slowly ionise the primordial atoms of the surrounding IGM. In this talk, I will present the cosmological prospects of the 21cm signal, with a focus on reionisation, and show what we can learn from radio observations with current and future experiments, in particular the upcoming Square Kilometre Array (SKA).

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