

Galaxy Formation and Reionization (Stuart Wyithe)

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Our knowledge of the high redshift galaxies responsible for reionising the Universe is constantly improving and will take yet another important step forward with future facilities. At the same time, constraints on the 21cm power spectrum from reionization are continually tightening, with a firm measurement from SKA-low likely in the coming years. In order to maximise what we can learn from these two complimentary observations, galaxy formation and reionization must be jointly modeled. In this talk, I will discuss results from the DRAGONS suite of semi-analytic models designed to self-consistently model the connection between galaxy formation reionization. Through monte-carlo analysis we find that the steep faint end slope of the high-redshift galaxy UV luminosity function extends well beyond current observational limits with an escape fraction that increases towards high redshift, indicating that galaxies contributing <50% of the ionising photons available for reionisation have been observed at $z < 7$. I will also demonstrate that the size evolution of high redshift galaxies imposes additional constraints on galaxy formation and how cross-correlating the topology of reionisation using SKA-low with galaxies will allow us to discriminate between different galaxy formation scenarios.

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