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Prospects for a Measurement of the 21 cm Galaxy Cross Spectrum with the SKA

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In the coming years, interferometers such as the Square Kilometer Array (SKA) will enable direct detection of the epoch of reionization (EoR), opening the window to a hitherto obscure epoch of cosmic history. First light from the SKA is expected to yield a low signal-to-noise (SNR) measurement of the 21 cm brightness temperature power spectrum and it will be difficult to convince the scientific community that the signal is genuine. Therefore, it is desirable to have a complimentary observation of proven cosmic origin in order to cross-correlate with preliminary 21 cm EoR observations from the SKA. In this talk, we show that a prospective galaxy survey of our design and the 21 cm signal measured by the SKA could produce a cross spectrum measurement of sufficient SNR to convince the scientific community of the cosmic nature of an SKA first light detection.

Research area

Epoch of Reionization

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