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The 21 cm forest

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Detecting the 21 cm signal from the EoR not in absorption/emission against the CMB but in absorption against a bright background radio sources (radio-loud QSO) removes many observational difficulties such as foreground removal. It has the potential to probe much smaller scales than 21 cm tomography. Consequently it requires a more detailed modeling.

I will present simulation results that show how the predicted 21cm optical depth is sensitive to a number of processes such as X-ray self-shielding, Ly-alpha self-shielding, and gravitational (shock) heating, that have been ignored or unresolved until now. I will also present
rough evaluations of the detectability of the 21cm forest using SKA, LOFAR and NENUFAR, and conclude that detection with NENUFAR would
require very favorable (unlikely ?) circumstances.

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