

Thermal history of the Universe at intermediate redshift: progress with 21cm absorption measurements

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An Absorption Feature in the Sky-Averaged Radio Spectrum

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The EDGES experiment has detected with high S/N an absorption feature in the radio spectrum centered at 78 MHz. This feature is broadly consistent with expectations for the global 21-cm absorption signal from cosmic dawn. However, important aspects of the signal differ from physical predictions. In particular, 1) its absorption amplitude is larger than expected, 2) its profile has surprisingly sharp features, and 3) the center frequency is in tension with predictions from high- z UV galaxy luminosity functions. Understanding the key experimental aspects is crucial when interpreting this challenging measurement. In my talk I will describe the EDGES detection of this absorption feature using our two Low-Band instruments. I will discuss the lab and field calibrations, the verifications tests, the data analysis, and the parameter estimation. I will also summarize recent efforts to constrain traditional 21-cm models using EDGES High-Band data.

Presenter: Dr MONSALVE, Raul