AstroSat detection of extreme-UV photons from a distant galaxy

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One of the outstanding problems of current observational cosmology is to understand the nature of sources that produced the bulk of the ionizing radiation after the Cosmic Dark Age. Direct detection of these reionization sources is practically infeasible at high redshift due to the steep decline of the intergalactic medium transmission. Not surprisingly, only a handful of ionizing sources are discovered to date.

In this talk, I report the detection of extreme-UV photons with high escape fraction (> 20%) from a low-mass clumpy galaxy, called AUDFs01 at z=1.42, in the middle of a redshift range where no detection has been made before. The detection of extreme ultraviolet radiation from a distant galaxy at rest-frame 600 Angstrom opens up a new window to constrain the shape of the ionisation spectrum. Further observations with AstroSat should substantially increase the sample of Lyman-continuum leaking galaxies at Cosmic Noon.