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Instrumentation for redshifted 21-cm line observations (Invited Talk)

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Universe has several poorly constrained periods over its evolution. Formation of first stars and galaxies, followed by reionization of the intergalactic medium is one such epoch. Often referred to as “cosmic dawn”, observing this period is extremely challenging due to the faint nature of the signals originating from it. The redshifted 21-cm line from neutral hydrogen offers one such possibility to observe the cosmic dawn and extract information about the nature of first stars and galaxies. In this talk, I will discuss our attempts at detecting the 21-cm signal from cosmic dawn. I will elaborate the challenges involved in detecting faint cosmological signals, and how our in-house designed experiments address those challenges. I will finally discuss the recent results from our observations, and explore how 21-cm signal can also be employed to probe other epochs at different redshifts.

Presenter: SINGH, Saurabh

Session Classification: Workshop on Cosmology