



Workshop on 21-cm Cosmology

December 9-13, 2024

Centre for Strings, Gravitation and Cosmology, Department of Physics,
Indian Institute of Technology Madras, Chennai

Scientific Organizing Committee

Somnath Bharadwaj, Tirthankar Roy Choudhury, Abhirup Datta, Kanan K. Datta, Tuhin Ghosh,
Rajesh Mondal, Janakee Raste, Nirupam Roy, L. Sriramkumar

Local Organizing Committee

Sri Aravind, Samir Choudhuri, Asif Elahi, Raghuveer Garani, Alipriyo Hoory, Shouvik Sarkar

Monday, December 9

Time	Speaker	Title
09:15-09:30	Introductory remarks	
09:30-10:15	Tirthankar Roy Choudhury	SKA-related science activities in India and future prospects
10:15-11:00	Nishikanta Khandai	21-cm Cosmology in the Post Reionization era
11:00-11:30	Coffee break	
11:30-11:50	Anindita Nandi	The correlations between galaxy properties in different environments of the cosmic web
11:50-12:10		
12:10-12:30	Samit Kumar Pal	Analysing the effect of calibration errors and instrumental noise on HI 21-cm maps from the EoR using the LCS
12:30-14:00	Lunch break	
14:00-14:30	Abinash Kumar Shaw	Inferring IGM properties during EoR using 21-cm Powerspectra
14:30-15:00	Janakee Raste	Thermal Evolution of the IGM with Lyman- α photons during Cosmic Dawn
15:00-15:30	Suvedha Suresh Naik	Signatures of Primordial Features in the High-redshift 21 cm Signal
15:30-16:00	Coffee break	
16:00-17:00	Coordinator	Poster Session



Tuesday, December 10

Time	Speaker	Title
09:30-10:15	Raghunath Ghara	Cosmic Dawn, Epoch of Reionization: Theory and Simulation
10:15-11:00	Barun Maity	Reionization using FRBs
11:00-11:30	Coffee break	
11:30-11:50	Anirban Chakraborty	Modeling star-forming galaxies in the Epoch of Reionization
11:50-12:10	Suman Pramanick	The Evolving Power Spectrum for the lightcone epoch of reionization 21-cm signal
12:10-12:30	Minal Chhabra	Estimation of HI Bias & Model parameters in Post-EoR universe
12:30-14:00	Lunch break	
14:00-14:30	Kanan Kumar Datta	Activities of the SKA India EoR&Cosmology SWG
14:30-15:00	Madhurima Choudhury	Deciphering the IGM from 21-cm power spectrum measurements
15:00-15:30	Ankita Bera	Reconciling early massive galaxies with cosmic reionization constraints
15:30-16:00	Coffee break	
16:00-17:00		Summary and Discussion



Wednesday, December 11

Time	Speaker	Title
09:30-10:15	Asif Elahi	21-cm Intensity Mapping using the uGMRT
10:15-11:00	Suman Sarkar	Impact of Large-Scale Structure Formation on the Global Information Budget the Global Information Budget
11:00-11:30	Coffee break	
11:30-11:50	Antara Dey	"Exploring Reionization astrophysical parameters using Gaussian Process Regression "
11:50-12:10	Debarun Paul	Impacts of Z3 symmetric dark matter models on global 21-cm signal
12:10-12:30	Shouvik Sarkar	Measuring the DGSE using the Murchison Widefield Array (MWA)
12:30-14:00	Lunch break	
14:00-14:30	L. Sriramkumar	Observing nulls in the primordial correlations through the HI 21 cm signal
14:30-15:00	Abhijeet Patil	Probing Cosmic Dark Ages from the Lunar surface
15:00-15:30	Chandra Shekhar Murmu	Forecasting the CO-21cm cross-correlation signal from the EoR using line-intensity mapping surveys
15:30-16:00	Coffee break	
19:00 - 21:00	Banquet Dinner	



Thursday, December 12

Time	Speaker	Title
09:30-10:15	Girish Kulkarni	21cm forest and multi-wavelength observations of the early phase of our Universe
10:15-11:00	Prasun Dutta	Challenges in observing redshifted 21 cm emission
11:00-11:30	Discussion on Observations	
11:30-12:00	Coffee break	
12:00-12:20	Saikat Gayen	Recovering redshifted 21-cm power spectrum : residual gain effects in radio interferometric Observations.
12:20:-12:40	Arnab Mishra	Detecting ionized bubbles around luminous sources during the reionization era using HI 21-cm signal
12:40-14:00	Lunch break	
14:00-14:30	Deepthi Moorkanat	21-cm Cosmology: Unveiling the Dark Ages
14:30-14:50	Rashmi Sagar	Constraints on the 21-cm signal from the EoR: uGMRT Band-2 observations of ELAIS-N1 field
14:50-15:10	J.Sri Aravind	Constraining Neutral Hydrogen Fluctuations at $z \sim 1$ Using the uGMRT 21-cm Intensity Mapping Autocorrelation
15:10-15:30	Muskan Khan	A Dynamical System Analysis in Cosmology
15:30-16:00	Coffee break	
16:00-17:00	Chandrasekhar Lectures by Prof. Shiv Sethi 21-cm cosmology: scope and prospects	



Friday, December 13

Time	Speaker	Title
09:30-10:15	T Prabhu	overview of the SKA telescope
10:15-11:00	Saurabh Singh	Global signal and SARAS
11:00-11:30	Coffee break	
11:30-11:50	Narendra S	Global Signal Detection using Interferometers
11:50-12:50		Summary and Discussion
12:50-13:00		Vote of Thanks
13:00-14:00	Lunch break	

