Urvashi Arora

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Publications

- **Combined lensed estimator to probe the post-reionization HI power spectrum.** 2021
  MNRAS, 507, 5310-5319
- **Using strong gravitational lensing to probe the post reionization HI power spectrum.** 2020
  MNRAS, 498, 3275-3282
- **Neutral hydrogen distribution in the post reionization era through gravitational lenses.** 2020
  IEEE conference preceding
- **Galaxy mapping in neutral hydrogen using strong gravitational lensing.** 2022
  In preparation

Work Experience

- One year experience of taking master General lab as TA duty.
- One year experience in taking B.tech. General lab as TA duty.
- Two years experience of teaching phy101 course as TA duty.
- Two years experience of teaching in a college as an Assistant professor.

Education

- **Indian Institute of Technology(Banaras Hindu University)** Varanasi, India
  PhD(Thesis Title: Using strong Gravitational lensing to probe HI in the post-reionization universe) *July, 2017 –*
- **Kurukshetra University** kurukshetra, India
  Master of Science(Physics); Percent: 80 *July 2013 – July 2015*
- **University College, Kurukshetra University** kurukshetra, India
  Bachlor of science(Electronics); Percent: 81.7 *July 2010 – June 2013*

Awards and Honors

- Institute gate fellowship for PhD, IIT(BHU), Varanasi, July(2017).
- Qualified Graduate Aptitude Test (GATE) conducted by HRDG (Human Resource Development Group) Govt. of India (March 2017).
- Qualified net(National eligibility test) conducted by HRDG (Human Resource Development Group) Govt. of India (Dec 2016).
- Distinction in M.Sc., July(2015).
- Pose scholarship from science and technology, Haryana, 2013.
- Distinction in B.Sc., June(2013).

Programming Skills

- **Languages**: Python, C, Linux shell scripting
- **Softwares**: Mathematica, Gnuplot, Desmos, DS9, Latex, CASA

Participation in Conference, School and workshop

- Presented a talk at 21 cm Cosmology workshop(online), (19-23 April 2021).
- presented a poster at the SAZERAC conference(online), (June 2020).
- Presented a poster at URSI regional conference on Radio science, IIT(BHU), Varanasi(12-14 February, 2020).
- Presented a talk at the international conference "The First Billion Years of the Universe" IIT(Indore)(20-24 January 2020).
- Participated in a Radio Astronomy School, NCRA, Pune(19-31 August 2019).
- Presented a poster at the international conference "The Metrewavelength Sky - II" Pune(18-22 March 2019).
- Presented a talk in Kodaikanal School and workshop "Frontiers in 21 cm Cosmology", Kodaikanal(10-18 Dec 2018).

Research Summary

Observation of 21cm signal from the universe possesses the potential to know about various processes behind galaxy formation, the dynamic of galaxies and the morphology of a galaxy. But it is still a big challenge to observe this signal because of its weak nature. So we have used the Strong gravitational lensing technique to observe this signal by galaxy cluster as the lens to observe the magnified version of this signal. Also, we formulated an estimator to reduce the effect of Sample variance and foreground signal and time require to measure the HI power power-spectrum by uGMRT and future radio telescopes. Further, we use the same technique to map the galaxy in neutral hydrogen.

References

Dr Prasun Dutta
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Prof. Sandip Chatterjee
(Professor)
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