

Suman Majumdar

CONTACT INFORMATION	Suman Majumdar Department of Astronomy, Astrophysics and Space Engineering Indian Institute of Technology Indore, Indore-453552, M.P., India	<i>E-mail:</i> suman.majumdar@iiti.ac.in , mid.suman@gmail.com <i>Voice:</i> +91 6296136775 http://www.iiti.ac.in/people/~sumanm/
RESEARCH INTERESTS	Cosmic Dawn and Epoch of Reionization, Square Kilometre Array, 21-cm Cosmology, Line Intensity Mapping, Simulations of CD-EoR and Large Scale Structures, Statistical Inference, Low Frequency Radio Interferometry.	
EDUCATION	Ph.D. Indian Institute of Technology Kharagpur , West Bengal, India Thesis defended: 2 April 2013. Degree received: 27 July 2013. Thesis title: Probing the Epoch of Reionization through radio-interferometric observations of neutral hydrogen. Supervisors: Prof. Somnath Bharadwaj and Prof. Sugata Pratik Khastgir. M.Sc. in Physics Indian Institute of Technology Kharagpur , West Bengal, India Degree received: August, 2007. Performance: 1st Class. B.Sc. in Physics (Hons.) Maulana Azad College, University of Calcutta , Kolkata, West Bengal, India Degree received: July, 2005. Performance: 1st Class.	
ACADEMIC EMPLOYMENTS	Associate Professor (Tenured) Department of Astronomy, Astrophysics and Space Engineering, Indian Institute of Technology Indore	December, 2022 - present Indore, India
	Assistant Professor (Tenured) Department of Astronomy, Astrophysics and Space Engineering, Indian Institute of Technology Indore	May, 2018 - November, 2022 Indore, India
	Postdoctoral Research Associate Department of Physics, Imperial College London	December, 2015 - April, 2018 London, UK
	Postdoctoral Fellow Department of Astronomy, Stockholm University	December, 2012 - November, 2015 Stockholm, Sweden
STUDENT SUPERVISION	PhD Supervision (as principal supervisor) at IIT Indore (1 completed, 4 ongoing): <ul style="list-style-type: none">• Dr. Mohammad Kamran (July 2018 - Nov 2022). Thesis defended on 22 Nov 2022 → Postdoc at Uppsala University (since September 2022), Sweden.• Chandra Shekhar Murmu (since July 2019 - ongoing).• Leon Noble (since July 2022 - ongoing).• D Manas Mohit (since July 2023 - ongoing).• Yashrajsinh Mahida (since July 2023 - ongoing). PhD Supervision (as co-supervisor) at IIT Indore (1 ongoing): <ul style="list-style-type: none">• Anshuman Tripathi (since July 2020 - ongoing).	

Unofficial PhD Mentorship:

- Dr. Hannes Jensen (2013-2015). PhD at Stockholm University, Sweden → Data Scientist at King.com, Sweden. → Developer at Veoneer, Sweden. → Senior Software Engineer at Arriver, Sweden. → Senior Software Engineer at Qualcomm, Sweden.
- Dr. Rajesh Mondal (2014-2017). PhD at the Indian Institute of Technology Kharagpur, India → Postdoc at University of Sussex, UK. → Postdoc at Stockholm University, Sweden. → Postdoc at Tel Aviv University, Israel, → Assistant Professor at NIT Calicut, India.
- Dr. Claude Schmit (2016-2018). PhD at Imperial College London, UK. → Data Scientist at Biosensors Beyond Borders, UK. → Physics Teacher at Lycée Josy Barthel Mamer, Luxembourg.
- Dr. Debanjan Sarkar (2017-2020). PhD at the Indian Institute of Technology Kharagpur, India → Postdoc at the Ben-Gurion University of the Negev, Israel. → Postdoc at the Trottier Space Institute, McGill University, Montreal, Canada.
- Dr. Abinash Kumar Shaw (2017-2021). PhD at the Indian Institute of Technology Kharagpur, India → Postdoc at the Open University of Israel, Ra'anana, Israel. → Postdoc at the University of Nevada Las Vegas, USA.

M.S.(Research) Project (1.5 years) Supervision at IIT Indore (1 completed):

- Saswata Dasgupta (Jan 2022 - July 2023). → PhD student at the Institute of Astronomy, Cambridge University (since October 2023).

M.Sc. Astronomy Project (1 year) Supervision at IIT Indore (8 completed, 3 ongoing):

- Hemanth Potluri (July 2023 - ongoing).
- Praneeth Avasarala (July 2023 - ongoing).
- Sanjay Kumar Yadav (July 2023 - ongoing).
- Vednarayan Iyer (July 2022 - July 2023). → PhD student at the University of Alabama, USA.
- Priyatam Kumar Mahto (July 2022 - July 2023). → Data scientist at Venn Tech. → Selected for a PhD position at the University of Chile, Santiago, Chile (will join in March 2024). Co-supervisor: Dr. Erik Zackrisson, Uppsala University, Sweden.
- Sohini Dutta (July 2021 - July 2022). → Data Scientist at American Express. → PhD student at Manchester University, UK (since October 2023).
- Kunal Motghare (July 2021 - July 2022).
- Aadarsh Pathak (July 2020 - July 2021). → PhD at the University of Melbourne, Australia (since January 2022).
- Anchal Saxena (July 2019 - July 2020). Recipient of the Best Project Award among all M.Sc. projects at IIT Indore in 2020. → PhD student at the University of Groningen, Netherlands (since October 2020).
- Himanshu Tiwari (July 2019 - July 2020). → PhD student at Curtin University, Australia (since January 2021).
- Samanvith A. (July 2019 - July 2020). → Physics educator at Avanti, India.

EXTERNALLY
FUNDED
PROJECTS

- PI of the project “**Galaxies through the ages: using synergistic multi-wavelength observations**” funded under the “Scheme for Promotion of Academic and Research Collaboration (SPARC)” from the Ministry of Education, India (July 2023 - July 2025), (6236000 INR ~ 70700 EUR).
- PI of the project “**Observing the Cosmic Dawn in Multicolour using Next Generation Telescopes**” funded by a Core Research Grant by DST-SERB, India (March 2022 - March 2025), (2500000 INR ~ 28500 EUR).
- SIRE Fellowship from DST-SERB, India (2022), (10000 USD).
- PI of the project “**Unveiling the Cosmic Dawn: novel techniques to study the reionization of the early universe**” funded by the ASEM-DUO fellowship (2020-2022), (6000 euro).

- PI of the project “**Imaging the first billion years of the universe with next-generation telescopes**” funded under the “Scheme for Promotion of Academic and Research Collaboration (SPARC)” from the Ministry of Education, India (March 2019 - March 2023), (5400000 INR \sim 61200 EUR).

POSITION OF
LEADERSHIP AND
RESPONSIBILITY

- Leading the **Cosmology with Statistical Inference (CSI) Research Group** at IIT Indore, India.
- Leading member of the **Square Kilometre Array - India collaboration** for the **Cosmic Dawn and the Epoch of Reionization**.
- Member of the International Science Working Group for the **Cosmic Dawn and the Epoch of Reionization** science using the **Square Kilometre Array**.
- Member of the **Epoch of Reionization** collaboration for the **LOFAR Radio Telescope**.
- **Expert reviewer** in the **NASA Postdoctoral Program** Application Review Committee.
- **PhD thesis examiner** of Dr. Barun Maity, NCRA-TIFR, Pune, India.
- **Master’s thesis examiner** of Simon Karlsson, Department of Astronomy, Stockholm University, Sweden.
- **Member of the research progress and thesis evaluation committee** of the **11 PhD students** at IIT Indore: Sanmoy Bandyopadhyay, Sayan Kundu, Sarvesh Mangla, Unnati Kashyap, Parul Janagal, Akriti Sinha, Biki Ram, Rashmi Sagar, Chandan Kumar Das, Samit Kumar Pal, Bhuvnesh Brawar.
- **Convener** of the **Departmental Undergraduate Committee** at the Department of Astronomy, Astrophysics and Space Engineering, IIT Indore, India (March 2022 - present).
- Representing the Department of Astronomy, Astrophysics and Space Engineering, in the **Senate Undergraduate Committee** of IIT Indore, India (March 2022 - present).
- During my tenure as the Convener of the Departmental Undergraduate Committee, I took a lead role in starting a **new Bachelor in Technology** programme in the department i.e. **BTech in Space Science and Engineering (duration: 4 years)** (started in July 2023). This is a unique and first-of-its-kind programme offered by any IIT in India.
- **Convener** of the **Departmental Postgraduate Committee** at the Department of Astronomy, Astrophysics and Space Engineering, IIT Indore, India (September 2019 - March 2022).
- Represented the Department of Astronomy, Astrophysics and Space Engineering, in the **Senate Postgraduate Committee** of IIT Indore, India (September 2019 - March 2022).
- During my tenure as the Convener of the Departmental Postgraduate Committee, I took a lead role in starting **two new Master’s programme** in the department. **MS (Research) in Space Science and Engineering (duration: 2 years)** and **MTech in Space Engineering (duration: 2 years)** (both started in July 2021).
- **Coordinator** of the **PhD programme** at the Department of Astronomy, Astrophysics and Space Engineering, IIT Indore, India (September 2019 - March 2022).
- **Coordinator** of the **M.Sc. in Astronomy** programme at IIT Indore, India (July 2018 - July 2020).
- **Faculty Advisor** for 16 B.Tech. and 19 M.Sc. students at IIT Indore, India (July 2018 - present).
- **Postdoc Representative** at the Astrophysics Group, Department of Physics, Imperial College London (2017-2018).

JOURNAL
REVIEWER

Monthly Notices of the Royal Astronomical Society
Astrophysical Journal
Journal of Astronomy and Astrophysics

FELLOWSHIPS,
AWARDS AND
MEMBERSHIPS

- SIRE Fellowship from DST-SERB (2022), (10000 USD).
- ASEM-DUO Fellowship (2020-2022) (6000 euro).
- Academic Visitor, Scuola Internazionale Superiore di Studi Avanzati (**SISSA**), Italy (since Nov, 2019).
- Academic Visitor, International Centre for Theoretical Physics (**ICTP**), Italy (since June, 2019).
- Academic Visitor, **Imperial College London**, UK (since April, 2019).
- Fellow of the **Royal Astronomical Society**, UK (since January, 2017).
- Alva and Lennart Dahlmark Research Grant, Sweden (2015), (10000 SEK).
- Member of the “**Epoch of Reionization and the Dark Ages**” international science working group for the **Square Kilometre Array (SKA)** (since February, 2015).
- Member of the “**Epoch of Reionization**” science working group for the **LOFAR International Telescope** (since 2015).
- Member of the “**Square Kilometre Array - India**” collaboration for the “**Cosmic Dawn and the Epoch of Reionization**” (since 2015).
- Jubilee Donation Grant, K & A Wallenberg Foundation, Sweden (2014), (7000 SEK).
- Alva and Lennart Dahlmark Research Grant, Sweden (2014), (17500 SEK).
- Senior Research Fellowship, from Council of Scientific and Industrial Research, India (2011-2012).
- Senior Research Fellowship, from IIT Kharagpur (2009-2011).
- Junior Research Fellowship, from IIT Kharagpur (2007-2009).
- Best Speaker Award in the Research Scholar Day, Department of Physics, IIT Kharagpur (2009).
- Best Speaker Award in the Young Astronomers Meet, India (2009).

PUBLICATIONS

Total 52 articles in peer-reviewed journals with 1750+ citations. h-index 23. i10-index 34.

See Appendix - I for the detailed publication list.

arXiv: https://arxiv.org/a/majumdar_s_1.html.

ORCID: <https://orcid.org/0000-0001-5948-6920>.

Google Scholar: <https://scholar.google.com/citations?user=-ceigSYAAAAJ>.

TALKS AND
PRESENTATIONS

68 talks/lectures (24 Invited, 18 Colloquia and 26 Contributed).

See Appendix - II for the detailed list of talks.

SIMULATIONS,
STATISTICAL
ANALYSIS TOOLS
& PIPELINES
DEVELOPED

Following simulations and tools are written in: C, C++ and python

Development of Cosmological Simulations:

- **Developed a Semi-numerical simulation of Reionization - Sem-Num:** https://github.com/midsuman/ionz_codes (associated articles: arXiv: 1111.6354, 1209.4762, 1403.0941, 1509.07518, 1610.08179 etc.).
The OpenMP parallel version of Sem-Num is ReionYuga: <https://github.com/rajeshmondal18/ReionYuga> (associated articles: arXiv: 1409.4420, 1508.00896 etc.).
- **Contributed to the initial development of a Particle-Mesh (PM) N-Body simulation:** <https://github.com/rajeshmondal18/N-body> (associated articles: arXiv: 0805.1734, 1109.5552).
- **Contributed to the development of a Semi-numerical simulation of Line Intensity Maps (CII, CO, OIII etc) from high redshift galaxies:** https://github.com/chandra-001/LIM_simulator (associated articles: arXiv: 2107.09072, 2110.10687, 2210.09612 etc.).

Development of Statistical Inference Pipeline from Observables:

- **Contributed to the development of an Artificial Neural Network-based Emulator of the 21 cm Signal Statistics from the Epoch of Reionization and associated Bayesian Inference Pipeline - EmuPBk:** <https://github.com/himmng/EmuPBk> (associated articles: arXiv: 2108.07279).
- **Contributed to the development of a Bayesian Likelihood estimator for FRB model parameters - FRBe:** <https://github.com/himmng/frbe> (associated articles: arXiv: 2109.06785, 2209.12961).

Development of Algorithms for the Estimation of various Statistics from Cosmological Signals:

- **Developed an algorithm for estimation of the moments of the power spectrum** from cosmological data. (associated articles: arXiv: 1209.4762, 1403.0941, 1509.02277, 1509.07518, 1610.08180).
- **Developed an efficient algorithm for the estimation of bispectrum** from cosmological data. (associated articles: arXiv: 1708.08458, 1907.01819, 1905.07161, 2004.04808, 2007.06584, 2012.11616, 2108.08201, 2108.07279, 2207.09128).
- **Contributed to the development of a robust algorithm for the estimation of bispectrum.** (associated articles: arXiv: 2107.02668).
- **Contributed to the development of a fast algorithm for the estimation of bispectrum moments.** (associated articles: arXiv: 1705.06284, 2107.14564).

Development of an end-to-end pipeline for the analysis of the CD-EoR observations via SKA: Working towards the development of an end-to-end pipeline for the analysis of the CD-EoR observations via SKA. (associated articles: arXiv: 2207.06169, 2302.02727).

ACADEMIC VISITS

Stockholm University and Uppsala University, Stockholm, Sweden, 25 Nov - 30 Dec, 2021.
Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, Italy, 07 Nov - 15 Dec, 2019.
International Centre for Theoretical Physics (ICTP), Trieste, Italy, 09-30 June and 08-18 July, 2019.
Stockholm University and Uppsala University, Stockholm and Uppsala, Sweden, 01-07 July, 2019.
Astrophysics Group, Imperial College London, London, U.K., 15-19 April, 2019.
Department of Physics, University of Western Cape, Cape Town, South Africa, 6 - 11 June, 2015.
Korea Astronomy and Space Science Institute, Daejeon, Korea, 13 - 15 Nov, 2014.
Asia Pacific Centre for Theoretical Physics, Pohang, Korea, 10 - 13 Nov, 2014.
Harish-Chandra Research Institute, Allahabad, India, 22 Jan-4 Feb, 2011; 23 Jan-6 Feb, 2012.

TEACHING AND RELATED EXPERIENCES

Indian Institute of Technology Indore, India

Lecturer and Developer: Relativity and Cosmology, M.Sc., MS(R) & PhD course, Autumn 2019, 2020, 2021, 2022, 2023.

Lecturer and Developer: Astrostatistics, M.Sc., MS(R) & PhD course, Spring 2019, 2020, 2021, 2022, 2023.

Lecturer and Developer: Advanced Computational Methods in Astronomy and Space Sciences, M.Sc., MS(R) & PhD course, Spring 2022, 2023.

Lecturer and Developer: Large Scale Structures of the Universe, M.Sc. and PhD course, Spring 2019.

Lab Instructor and Designer: Optics Experiments, M.Sc. lab course, Spring 2019, 2020, 2021, 2022, 2023.

Lecturer and Developer: Astrophysical Processes, Astronomy Minor Prog., Autumn 2018, 2019, 2020.

Lab Instructor and Designer: Numerical Techniques in Astronomy, M.Sc. lab course, Autumn 2018, 2021, 2022.

Indian Institute of Technology Indore & Indian Institute of Management Indore, India

Master of Science in Data Science and Management (a two year long master's programme launched jointly by IIT and IIM Indore in 2022)

Lecturer and Developer: Probability and Statistics, Spring 2022, 2023.

Lecturer and Developer: Advanced Bayesian Inference for Data Science, Spring 2023.

Imperial College London, UK

Lab Instructor: B.Sc. Physics (2nd year), 2017 - 2018, 2 terms.

Lab Instructor: B.Sc. Physics (1st year), 2016 - 2017, 2 terms.

Stockholm University, Sweden

B.Sc. Thesis Examiner: Analysing the topology of reionization using Minkowski functional, June 13, 2013.

Tutor: Introduction to Cosmology, B.Sc. Astrophysics (3rd year), 2013 - 2014, 1 semester.

Indian Institute of Technology Kharagpur, India

Tutor: PHYSICS II, B.Tech. (2nd year), 2009 - 2010, 2 semesters.

Tutor: PHYSICS I, B.Tech. (1st year), 2009, 1 semester.

Lab Instructor: Computational Physics, M.Sc. Physics (1st year), 2010 - 2011, 2 semesters.

Lab Instructor: Optics, M.Sc. Physics (1st year), 2008 - 2010, 2 semesters.

Lab Instructor: PHYSICS I Lab, B.Tech. (1st year), 2008 - 2010, 3 semesters.

Lab Instructor: Electronics, M.Sc. Physics (1st year), 2008, 1 semester.

Lab Instructor: B.Tech. Prep. Lab, 2007 - 2010, 2 semesters.

CONFERENCE
AND
MEETING
ORGANIZATION

- A SPARC-sponsored course on **Numerical Radiative Transfer**, 10-26 January 2024, IIT Indore, India, Main Organizer, <https://tinyurl.com/radtranIliev>, Lecturer: Ilian T. Iliev, University of Sussex.
- **Annual Meeting of the Astronomical Society of India**, 1-5 March 2023, IIT Indore, India, Member of the LOC, <https://www.astron-soc.in/asi2023/>.
- A SPARC-sponsored course on **Numerical Astrophysical Gasdynamics**, 13-18 February 2023, IIT Indore, India, Main Organizer, <https://tinyurl.com/77k86ape>, Lecturer: Garrelt Mellema, Stockholm University.
- A SPARC-sponsored course on the **Search for ExtraTerrestrial Intelligence (SETI)**, 9-15 September 2022, IIT Indore, India, Main Organizer, <https://tinyurl.com/4nytf3rc>, Lecturer: Erik Zackrisson, Uppsala University.
- **SAZERAC 21cm 2022**, One of the main organizers and member of the SOC, 14-17 March 2022, Online, http://sazerac-conference.org/21cm_2022/.
- **39th Annual Meeting of the Astronomical Society of India (ASI)**, Member of the Virtual Organizing Committee, 18-23 February 2021, Online, <https://astron-soc.in/asi2021/home>.
- **SAZERAC sip: The 21-cm Signal from Cosmic Dawn and the Epoch of Reionisation**, Main organizer and SOC Convener, 29th January 2021, Online, <http://sazerac-conference.org/SIPS2021/3.html>.
- **The First Billion Years of the Universe Using Next Generation Telescopes**, Main organizer, LOC Chair and SOC Convener, A two week long international conference and school, 20-31 January 2020, IIT Indore, India, <http://www.iiti.ac.in/people/~firstbillion/>.
- **Royal Astronomical Society specialist meeting on The Epoch of Reionisation: UK community update**, One of the main organizer, 9th February, 2018, RAS, London, UK.
- **The SKA Key Science Workshop**, Member of the LOC, 24th - 27th August, 2015, Wenner-Gren Center, Stockholm, Sweden.
- **Lyman Continuum Leakage and Cosmic Reionization**, Member of the LOC, 13th - 15th August, 2014, Stockholm University, Stockholm, Sweden.
- **Photo-Evaporation in Astrophysical Systems**, Member of the LOC, 3rd - 28th June, 2013, NORDITA, Stockholm, Sweden.
- **Young Astronomers' Meet**, Member of the LOC and the Web Team, 14th - 16th March, 2009, Indian Institute of Technology Kharagpur, India.

OUTREACH
ACTIVITIES

Regular **sky-watching sessions** with the **Astronomy Club** at IIT Indore, India (2018-2023).

Astronomy talks in Hindi, astronomy in VR and sky-watching sessions in the schools of under-privileged areas in central India (2019-2023).

Astronomy talks, astronomy in VR and sky-watching sessions at the **India International Science Festival**, Bhopal, India (2023).

Online talks on the Solar Eclipse on 21 June 2020, IIT Indore, India (2020).

Reaching for the Stars: IAU 100 Hours of Astronomy Event, IIT Indore, India (2019).

Bapu Khagol Mela (Gandhi Astro Fair), IIT Indore, India (2018).

Cosmic Dawn stand talks, Imperial Festival, Imperial College London, UK (2018).

Planetarium show talks, Imperial Festival, Imperial College London, UK (2016).

Telescope Night, Department of Astronomy, Stockholm University, Sweden (2013, 2015).

Fysik i Kungsträdgården (Physics in the Royal Garden), Stockholm, Sweden (2013).

Cosmology for All, Lund Observatory, Sweden (2013).

COLLABORATORS Jonathan R. Pritchard (Imperial College London, UK), Garrelt Mellema (Stockholm University, Sweden), Erik Zackrisson (Uppsala University, Sweden), Somnath Bharadwaj (IIT Kharagpur, India), Thomas R. Greve (DAWN, DTU Space, Denmark), Tirthankar Roy Choudhury (NCRA-TIFR, India), Matteo Viel (SISSA, Italy), Ilian T. Iliev (University of Sussex, UK), Kanan K. Datta (Jadavpur University, India), Rajesh Mondal (TelAviv University, Israel), Catherine A. Watkinson (Queen Mary University of London, UK), Koki Kakiichi (University College London, UK).

REFERENCES **Prof. Jonathan R. Pritchard**, Astrophysics Group, Department of Physics, Imperial College London, Blackett Laboratory, Prince Consort Road, London-SW7 2AZ, UK, j.pritchard@imperial.ac.uk, +44-207-594-7557
Prof. Garrelt Mellema, Department of Astronomy, Stockholm University, SE-10691, Stockholm, Sweden, garrelt@astro.su.se, +46-8-5537-8552
Prof. Somnath Bharadwaj, Department of Physics, IIT Kharagpur, Kharagpur-721302, West Bengal, India, somnath@phy.iitkgp.ernet.in, somnathbharadwaj@gmail.com, +91-3222-283806
Dr. Erik Zackrisson, Department of Physics and Astronomy, Uppsala University, Box 516, Uppsala-751 20, Sweden, erik.zackrisson@physics.uu.se, +46-18-471-5975
Prof. Tirthankar Roy Choudhury, NCRA-TIFR, Pune University Campus, Post Bag 3, Ganeshkhind, Pune-411007, India, tirth@ncra.tifr.res.in, +91-20-25719270
Dr. Matteo Viel, Scuola Internazionale Superiore di Studi Avanzati (SISSA), via Bonomea, 265, I-34136 Trieste, Italy, viel@sissa.it, +39-040-3787517
Prof. Ilian T. Iliev, Department of Physics and Astronomy, University of Sussex, Brighton-BN19QH, UK, I.T.Iliev@sussex.ac.uk, +441273873737
Dr. Sugata Pratik Khastgir, Department of Physics, IIT Kharagpur, Kharagpur-721302, West Bengal, India, pratik@phy.iitkgp.ernet.in, +91-3222-283858

Total 52 articles in peer-reviewed journals with 1750+ citations.

h-index 23. i10-index 34. Source: Google Scholar.

Google Scholar: <https://scholar.google.com/citations?user=-ceigSYAAAAJ>.

ORCID: <https://orcid.org/0000-0001-5948-6920>.

arXiv: https://arxiv.org/a/majumdar_s_1.html.

8 (9) 1st (2nd) author refereed publications.

300+ citations: 1 article. Marked with *****.

175+ citations: 1 article. Marked with ******.

100+ citations: 2 articles. Marked with *******.

50+ citations: 7 articles. Marked with ********.

Articles led by students and postdocs are marked with **#**.

Most of my articles are published in the Monthly Notices of the Royal Astronomical Society (**Impact Factor: 4.8**), Astrophysical Journal (**Impact Factor: 5.521**) and Journal of Cosmology and Astroparticle Physics (**Impact Factor: 7.28**).

TOP 5 PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Mohd Kamran, Raghunath Ghara, **Suman Majumdar**, Garrelt Mellema, Somnath Bharadwaj, Jonathan R. Pritchard, Rajesh Mondal, Ilian T. Iliev, *Redshifted 21-cm bispectrum: Impact of the source models on the signal and IGM physics from the Cosmic Dawn*, **Journal of Cosmology and Astroparticle Physics**, (2022), arXiv:2207.09128, DOI: <https://doi.org/10.1088/1475-7516/2022/11/001#>
2. Chandra Shekhar Murmu, **Suman Majumdar**, Kanan K. Datta, *CII and HI 21-cm line intensity mapping from the EoR: Impact of the light-cone effect on auto and cross-power spectra*, **Monthly Notices of the Royal Astronomical Society**, 507, 2, 2500-2509 (2021), arXiv:2107.09072, DOI: <https://doi.org/10.1093/mnras/stab2347#>
3. ***** Suman Majumdar**, Jonathan R. Pritchard, Rajesh Mondal, Catherine A. Watkinson, Somnath Bharadwaj, Garrelt Mellema, *Quantifying the non-Gaussianity in the EoR 21-cm signal through bispectrum*, **Monthly Notices of the Royal Astronomical Society**, 476, 3, 4007-4024 (2018), arXiv:1708.08458, DOI: <https://doi.org/10.1093/mnras/sty535>
4. ***** Suman Majumdar**, Garrelt Mellema, Kanan K. Datta, Hannes Jensen, T. Roy Choudhury, Somnath Bharadwaj, Martina M. Friedrich, *On the use of semi-numerical simulations in predicting the 21-cm signal from the epoch of reionization*, **Monthly Notices of the Royal Astronomical Society**, 443, 4, 2843-2861 (2014), arXiv:1403.0941, DOI: <https://doi.org/10.1093/mnras/stu1342>
5. ****** Suman Majumdar**, Somnath Bharadwaj, T. Roy Choudhury, *The effect of peculiar velocities on the epoch of reionization 21-cm signal*, **Monthly Notices of the Royal Astronomical Society**, 434, 3, 1978-1988 (2013), arXiv:1209.4762, DOI: <https://doi.org/10.1093/mnras/stt1144>

COMPLETE LIST OF PUBLICATIONS IN PEER-REVIEWED JOURNALS

As first author:

1. **Suman Majumdar**, Mohd Kamran, Jonathan R. Pritchard, Rajesh Mondal, Arindam Mazumdar, Somnath Bharadwaj, Garrelt Mellema, *Redshifted 21-cm Bispectrum I: Impact of the Redshift Space Distortions on the Signal from the Epoch of Reionization*, **Monthly Notices of the Royal Astronomical Society**, 499, 4, 5090-5106, (2020), arXiv:2007.06584, DOI: <https://doi.org/10.1093/mnras/staa3168>
2. ***** Suman Majumdar**, Jonathan R. Pritchard, Rajesh Mondal, Catherine A. Watkinson, Somnath Bharadwaj, Garrelt Mellema, *Quantifying the non-Gaussianity in the EoR 21-cm signal through bispectrum*, **Monthly Notices of the Royal Astronomical Society**, 476, 3, 4007-4024 (2018), arXiv:1708.08458, DOI: <https://doi.org/10.1093/mnras/sty535>
3. **Suman Majumdar**, Kanan K. Datta, Raghunath Ghara, Rajesh Mondal, T. Roy Choudhury, Somnath Bharadwaj, Sk. Saiyad Ali, Abhirup Datta, *Line-of-Sight Anisotropies in the Cosmic Dawn*

and Epoch of Reionization 21-cm Power Spectrum, “Science with the SKA: an Indian perspective” special issue of **Journal of Astrophysics and Astronomy**, 37, 4, 32, (2016), arXiv:1610.08180, DOI:<https://doi.org/10.1007/s12036-016-9402-0>

4. **Suman Majumdar**, Hannes Jensen, Garrelt Mellema, Emma Chapman, Filipe B. Abdalla, Kai Yan Lee, Ilian T. Iliev, Keri L. Dixon, Kanan K. Datta, Benedetta Ciardi, Elizabeth R. Fernandez, Vibor Jelić, Léon V. E. Koopmans, Saleem Zaroubi, *Effects of the sources of reionization on 21-cm redshift space distortions*, **Monthly Notices of the Royal Astronomical Society**, 456, 2, 2080-2094 (2016), arXiv:1509.07518, DOI:<https://doi.org/10.1093/mnras/stv2812>
5. *** **Suman Majumdar**, Garrelt Mellema, Kanan K. Datta, Hannes Jensen, T. Roy Choudhury, Somnath Bharadwaj, Martina M. Friedrich, *On the use of seminumerical simulations in predicting the 21-cm signal from the epoch of reionization*, **Monthly Notices of the Royal Astronomical Society**, 443, 4, 2843-2861 (2014), arXiv:1403.0941, DOI:<https://doi.org/10.1093/mnras/stu1342>
6. **** **Suman Majumdar**, Somnath Bharadwaj, T. Roy Choudhury, *The effect of peculiar velocities on the epoch of reionization 21-cm signal*, **Monthly Notices of the Royal Astronomical Society**, 434, 3, 1978-1988 (2013), arXiv:1209.4762, DOI:<https://doi.org/10.1093/mnras/stt1144>
7. **** **Suman Majumdar**, Somnath Bharadwaj, T. Roy Choudhury, *Constraining quasar and intergalactic medium properties through bubble detection in redshifted 21-cm maps*, **Monthly Notices of the Royal Astronomical Society**, 426, 4, 3178-3194 (2012), arXiv:1111.6354, DOI:<https://doi.org/10.1111/j.1365-2966.2012.21914.x>
8. **Suman Majumdar**, Somnath Bharadwaj, Kanan K. Datta, T. Roy Choudhury, *The impact of anisotropy from finite light travel time on detecting ionized bubbles in redshifted 21-cm maps*, **Monthly Notices of the Royal Astronomical Society**, 413, 2, 1409-1418 (2011), arXiv:1006.0430, DOI:<https://doi.org/10.1111/j.1365-2966.2011.18223.x>

As second author:

9. Mohd Kamran, **Suman Majumdar**, Raghunath Ghara, Garrelt Mellema, Somnath Bharadwaj, Jonathan R. Pritchard, Rajesh Mondal, Ilian T. Iliev, *Probing IGM Physics during Cosmic Dawn using the Redshifted 21-cm Bispectrum*, Submitted to the **Physical Review Letters**, (2021), arXiv:2108.08201, DOI: <https://arxiv.org/abs/2108.08201> #
10. Chandra Shekhar Murmu, **Suman Majumdar**, Kanan K. Datta, *CII and HI 21-cm line intensity mapping from the EoR: Impact of the light-cone effect on auto and cross-power spectra*, **Monthly Notices of the Royal Astronomical Society**, 507, 2, 2500-2509 (2021), arXiv:2107.09072, DOI:<https://doi.org/10.1093/mnras/stab2347> #
11. Anchal Saxena, **Suman Majumdar**, Mohd Kamran, Matteo Viel, *Impact of dark matter models on the EoR 21-cm signal bispectrum*, **Monthly Notices of the Royal Astronomical Society**, 497, 3, 2941-2953 (2020), arXiv:2004.04808, DOI:<https://doi.org/10.1093/mnras/staa1768> #
12. Erik Zackrisson, **Suman Majumdar**, Rajesh Mondal, Christian Binggeli, Martin Sahlen, Umberto Maio, Benedetta Ciardi, Kanan Datta, Tirthankar Roy Choudhury, Ikkoh Shimizu, Garrelt Mellema, *Mapping the galaxy content of individual ionized bubbles in the intergalactic medium at $z > 6$ with EUCLID, WFIRST, JWST and ELT*, **Monthly Notices of the Royal Astronomical Society**, 493, 1, 855-870 (2020), arXiv:1905.00437, DOI:<https://doi.org/10.1093/mnras/staa098>
13. Debanjan Sarkar, **Suman Majumdar**, Somnath Bharadwaj, *Modelling the post-reionization neutral hydrogen (HI) 21-cm bispectrum*, **Monthly Notices of the Royal Astronomical Society**, 490, 2, 2880-2889 (2019), arXiv:1907.01819, DOI:<https://doi.org/10.1093/mnras/stz2799> #
14. **** Catherine A. Watkinson, **Suman Majumdar**, Jonathan R. Pritchard, Rajesh Mondal, *A fast estimator for the bispectrum and beyond - A practical method for measuring non-Gaussianity in 21-cm maps*, **Monthly Notices of the Royal Astronomical Society**, 472, 2, 2436-2446 (2017), arXiv:1705.06284, DOI:<https://doi.org/10.1093/mnras/stx2130> #
15. **** Koki Kakiichi, **Suman Majumdar**, Garrelt Mellema et al., *Recovering the HII region size statistics from 21-cm tomography*, **Monthly Notices of the Royal Astronomical Society**, 471, 2, 1936-1954 (2017), arXiv:1702.02520, DOI:<https://doi.org/10.1093/mnras/stx1568> #
16. Hannes Jensen, **Suman Majumdar**, Garrelt Mellema, Adam Lidz, Ilian T. Iliev, Keri L. Dixon, *The wedge bias in reionization 21-cm power spectrum measurements*, **Monthly Notices of the Royal**

Astronomical Society, 456, 1, 66-70 (2016), arXiv:1509.02277, DOI:<https://doi.org/10.1093/mnras/stv2679> #

17. Kanan K. Datta, **Suman Majumdar**, Somnath Bharadwaj, T. Roy Choudhury, *Simulating the impact of HI fluctuations on matched filter search for ionized bubbles in redshifted 21 cm maps*, **Monthly Notices of the Royal Astronomical Society**, 391, 1900 (2009), arXiv:0805.1734, DOI:<https://doi.org/10.1111/j.1365-2966.2008.14008.x>

With significant contribution:

18. Anshuman Tripathi, Abhirup Datta, Madhurima Choudhury, **Suman Majumdar**, *Extracting the Global 21-cm signal from Cosmic Dawn and Epoch of Reionization in the presence of Foreground and Ionosphere*, **Monthly Notices of the Royal Astronomical Society**, (2024), arXiv:2401.01935, DOI: <https://doi.org/10.1093/mnras/stae078>#
19. Chandra Shekhar Murmu, Kanan K. Datta, **Suman Majumdar**, Thomas R. Greve, *Impact of astrophysical scatter on the Epoch of Reionization HI 21cm bispectrum*, Submitted in the **Monthly Notices of the Royal Astronomical Society**, (2023), arXiv:2311.17062, DOI: <https://doi.org/10.48550/arXiv.2311.17062>#
20. Sukhdeep Singh Gill, Suman Pramanick, Somnath Bharadwaj, Abinash Kumar Shaw, **Suman Majumdar**, *The monopole and quadrupole moments of the Epoch of Reionization (EoR) 21-cm bispectrum*, Accepted for publication in the **Monthly Notices of the Royal Astronomical Society**, (2023), arXiv:2310.15579, DOI: <https://doi.org/10.48550/arXiv.2310.15579>
21. Ragunath Ghara, Satadru Bag, Saleem Zaroubi, **Suman Majumdar**, *The morphology of the redshifted 21-cm signal from the Cosmic Dawn*, Submitted to **Monthly Notices of the Royal Astronomical Society**, (2023), arXiv:2308.00548, DOI: <https://doi.org/10.1088/1475-7516/2023/05/014>
22. Saswata Dasgupta, Samit Kumar Pal, Satadru Bag, Sohini Dutta, **Suman Majumdar**, Abhirup Datta, Aadarsh Pathak, Mohd Kamran, Rajesh Mondal, Prakash Sarkar, *Interpreting the HI 21-cm cosmology maps through Largest Cluster Statistics – I: Impact of the synthetic SKA1-Low observations*, **Journal of Cosmology and Astroparticle Physics**, (2023), arXiv:2302.02727, DOI:<https://doi.org/10.48550/arXiv.2308.00548>#
23. Siddhartha Bhattacharyya, Somnath Bharadwaj, Himanshu Tiwari, **Suman Majumdar**, *Modelling the energy distribution in CHIME/FRB Catalog-1*, **Monthly Notices of the Royal Astronomical Society**, (2023), arXiv:2209.12961, DOI:<https://doi.org/10.1093/mnras/stad458> #
24. Chandra Shekhar Murmu, Karen P. Olsen, Thomas R. Greve, **Suman Majumdar**, Kanan K. Datta, Bryan R. Scott, T. K. Daisy Leung, Romeel Dave, Gergo Popping, Raul Ortega Ochoa, David Vizgan, Desika Narayanan, *Revisiting the CII line-intensity mapping power spectrum from the EoR using non-uniform line-luminosity scatter*, **Monthly Notices of the Royal Astronomical Society**, 518, 2, 3074-3082, (2023), arXiv:2110.10687, DOI:<https://doi.org/10.1093/mnras/stac3304> #
25. Chandra Shekhar Murmu, Raghunath Ghara, **Suman Majumdar**, Kanan K. Datta, *Probing the Epoch of Reionization using synergies of line intensity mapping*, Accepted for publication in the **Journal of Astrophysics and Astronomy**, (2022), arXiv:2210.09612, DOI: <https://doi.org/10.48550/arXiv.2210.09612>#
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28. Aishrila Mazumder, Abhirup Datta, Arnab Chakraborty, **Suman Majumdar**, *Observing the Reionization : Effect of Calibration and Position Errors on Realistic Observation Conditions*, **Monthly Notices of the Royal Astronomical Society**, 515, 3, 4020-4037, (2022), arXiv:2207.06169, DOI: <https://doi.org/10.1093/mnras/stac1994>#

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30. Himanshu Tiwari, Abinash Kumar Shaw, **Suman Majumdar**, Mohd Kamran, Madhurima Choudhury, *Improving constraints on the reionization parameters using 21-cm bispectrum*, **Journal of Cosmology and Astroparticle Physics**, 2022, 04, 045, 27, (2022), arXiv:2108.07279, DOI: <https://doi.org/10.1088/1475-7516/2022/04/045> #
31. Kanan K. Datta, Raghunath Ghara, Ariful Hoque, **Suman Majumdar**, *Large HI optical depth and Redshifted 21-cm signal from cosmic dawn*, **Monthly Notices of the Royal Astronomical Society**, 509, 1, 945-953, (2022), arXiv:2110.06925, DOI: <https://doi.org/10.1093/mnras/stab3035>
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33. Rajesh Mondal, Garrelt Mellema, Abinash Kumar Shaw, Mohd Kamran, **Suman Majumdar**, *The Epoch of Reionization 21-cm Bispectrum – I: The impact of light-cone effects and detectability*, **Monthly Notices of the Royal Astronomical Society**, 508, 3, 3848-3859, (2021), arXiv:2107.02668, DOI: <https://doi.org/10.1093/mnras/stab2900> #
34. Abinash Kumar Shaw, Somnath Bharadwaj, Debanjan Sarkar, Arindam Mazumdar, Sukhdeep Singh, **Suman Majumdar**, *A fast estimator for quantifying the shape dependence of the bispectrum*, **Journal of Cosmology and Astroparticle Physics**, 2021, 12, 024, 21, (2021), arXiv:2107.14564, DOI: <https://doi.org/10.1088/1475-7516/2021/12/024> #
35. Mohd Kamran, Raghunath Ghara, **Suman Majumdar**, Rajesh Mondal, Garrelt Mellema, Somnath Bharadwaj, Jonathan R. Pritchard, Ilian T. Iliev, *Redshifted 21-cm bispectrum II: Impact of the spin temperature fluctuations and redshift space distortions on the signal from the Cosmic Dawn*, **Monthly Notices of the Royal Astronomical Society**, 502, 3, 3800-3813 (2021), arXiv:2012.11616, DOI: <http://dx.doi.org/10.1093/mnras/stab216> #
36. Rajesh Mondal, Abinash Kumar Shaw, Ilian T. Iliev, Somnath Bharadwaj, Kanan K. Datta, **Suman Majumdar**, Anjan K. Sarkar, Keri L. Dixon, *Predictions for measuring the 21-cm multi-frequency angular power spectrum using SKA-Low*, **Monthly Notices of the Royal Astronomical Society**, 494, 3, 4043-4056 (2020), arXiv:1910.05196, DOI: <https://doi.org/10.1093/mnras/staa1026> #
37. Cathryn M. Trott, Catherine A. Watkinson, Christopher H. Jordan, Shintaro Yoshiura, **Suman Majumdar**, ..., A. Williams, C. Wu, *Gridded and direct Epoch of Reionisation bispectrum estimates using the Murchison Widefield Array*, **Publications of the Astronomical Society of Australia**, 36, id. e023, (2019), arXiv:1905.07161, DOI: <https://doi.org/10.1017/pasa.2019.15>
38. Anne Hutter, Pratika Dayal, Sangeeta Malhotra, James Rhoads, ..., **Suman Majumdar**, ..., Erik Zackrisson, *Astro2020 Science White Paper: A proposal to exploit galaxy-21cm synergies to shed light on the Epoch of Reionization*, **Astronomy and Astrophysics Decadal Survey (Astro2020)** in the **Bulletin of the American Astronomical Society**, 51, 3, id. 57 (2019), arXiv:1903.03628, DOI: <https://ui.adsabs.harvard.edu/abs/2019BAAS...51c..57H/abstract>
39. Sambit K. Giri, Anson D'Aloisio, Garrelt Mellema, Eiichiro Komatsu, Raghunath Ghara, **Suman Majumdar**, *Position-dependent power spectra of the 21-cm signal from the epoch of reionization*, **Journal of Cosmology and Astroparticle Physics**, 2019, 02, 058-058, (2019), arXiv:1811.09633, DOI: <https://doi.org/10.1088/2F1475-7516/2F2019/2F02/2F058>
40. Rajesh Mondal, Somnath Bharadwaj, Ilian T. Iliev, Kanan K. Datta, **Suman Majumdar**, Abinash K. Shaw, Anjan K. Sarkar, *A method to determine the evolution history of the mean neutral Hydrogen fraction*, **Monthly Notices of the Royal Astronomical Society: Letters**, 483, 1, L109-L113, (2019), arXiv:1810.06273, DOI: <https://doi.org/10.1093/mnrasl/sly226> #
41. Raghunath Ghara, Garrelt Mellema, Sambit K. Giri, T. Roy Choudhury, Kanan K. Datta, **Suman Majumdar**, *Prediction of the 21-cm signal from reionization: comparison between 3D and 1D radiative transfer schemes*, **Monthly Notices of the Royal Astronomical Society**, 476, 2, 1741-1755 (2018), arXiv:1710.09397, DOI: <https://doi.org/10.1093/mnras/sty314> #

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43. Rajesh Mondal, Somnath Bharadwaj, **Suman Majumdar**, *Statistics of the epoch of reionization (EoR) 21-cm signal – II. The evolution of the power spectrum error-covariance*, **Monthly Notices of the Royal Astronomical Society**, 464, 3, 2992-3004 (2017), arXiv:1606.03874, DOI:<https://doi.org/10.1093/mnras/stw2599#>
44. Kanan K. Datta, Raghunath Ghara, **Suman Majumdar**, T. Roy Choudhury, Somnath Bharadwaj, Himadri Roy, Abhirup Datta, *Probing individual sources during reionization and cosmic dawn using SKA HI 21-cm observations*, “Science with the SKA: an Indian perspective” special issue of **Journal of Astrophysics and Astronomy**, 37, 4, 27, (2016), arXiv:1610.08177, DOI:<https://doi.org/10.1007/s12036-016-9405-x>
45. T. Roy Choudhury, Kanan K. Datta, **Suman Majumdar**, Raghunath Ghara, Aseem Paranjape, Rajesh Mondal, Somnath Bharadwaj, Saumyadip Samui, *Modelling the 21 cm Signal From the Epoch of Reionization and Cosmic Dawn*, “Science with the SKA: an Indian perspective” special issue of **Journal of Astrophysics and Astronomy**, 37, 4, 29, (2016), arXiv:1610.08179, DOI:<https://doi.org/10.1007/s12036-016-9403-z>
46. Rajesh Mondal, Somnath Bharadwaj, **Suman Majumdar**, *Statistics of the epoch of reionization (EoR) 21-cm signal: I - power spectrum error covariance*, **Monthly Notices of the Royal Astronomical Society**, 456, 2, 1936-1947 (2016), arXiv:1508.00896, DOI:<https://doi.org/10.1093/mnras/stv2772#>
47. ★★ L.V.E.Koopmans, J.Pritchard, G.Mellema, F.Abdalla,....., **S. Majumdar**,, S.Wyithe, *The Cosmic Dawn and Epoch of Reionization with the Square Kilometre Array*, **Proceedings of Science, Advancing Astrophysics with the Square Kilometre Array**, (2015), arXiv:1505.07568, DOI:<http://adsabs.harvard.edu/abs/2015aska.confE...1K>
48. Ilian T. Iliev, Mario G. Santos, Andrei Mesinger, **Suman Majumdar**, Garrelt Mellema, *Epoch of Reionization modelling and simulations for SKA*, **Proceedings of Science, Advancing Astrophysics with the Square Kilometre Array**, (2015), arXiv:1501.04213, DOI:<http://adsabs.harvard.edu/abs/2015aska.confE...7I>
49. ★★★ Garrelt Mellema, León Koopmans, Hemant Shukla, Kanan K. Datta, Andrei Mesinger, **Suman Majumdar**, on behalf of the CD/EoR Science Working Group, *HI tomographic imaging of the Cosmic Dawn and Epoch of Reionization with SKA*, **Proceedings of Science, Advancing Astrophysics with the Square Kilometre Array**, (2015), arXiv:1501.04203, DOI:<http://adsabs.harvard.edu/abs/2015aska.confE...10M>
50. ★★★ Rajesh Mondal, Somnath Bharadwaj, **Suman Majumdar**, Apurba Bera, Ayan Acharyya, *The effect of non-Gaussianity on error predictions for the Epoch of Reionization (EoR) 21-cm power spectrum*, **Monthly Notices of the Royal Astronomical Society: Letters**, 449, 1, L41-L45 (2015), arXiv:1409.4420, DOI:<https://doi.org/10.1093/mnrasl/slv015#>
51. ★★★ Kanan K. Datta, Hannes Jensen, **Suman Majumdar**, Garrelt Mellema, Ilian T. Iliev, Yi Mao, Paul R. Shapiro, Kyungjin Ahn, *Light cone effect on the reionization 21-cm signal-II. Evolution, anisotropies and observational implications*, **Monthly Notices of the Royal Astronomical Society**, 442, 2, 1491-1506 (2014), arXiv:1402.0508, DOI:<https://doi.org/10.1093/mnras/stu927>
52. Tapomoy Guha Sarkar, Sourav Mitra, **Suman Majumdar**, Tirthankar Roy Choudhury, *Constraining large scale HI bias using redshifted 21-cm signal from the post-reionization epoch*, **Monthly Notices of the Royal Astronomical Society**, 421, 4, 3570-3578 (2012), arXiv:1109.5552, DOI:<https://doi.org/10.1111/j.1365-2966.2012.20582.x>

PUBLICATIONS IN CONFERENCE PROCEEDINGS

53. **Suman Majumdar**, Garrelt Mellema, Kanan K. Datta, Hannes Jensen, Somnath Bharadwaj, T. Roy Choudhury, Martina M. Friedrich, *Simulations of cosmic reionization: comparison between different techniques*, **ASI Conference Series**, Vol. 13, pp. 309-311, (2014), Edited by J. N. Chengalur & Y. Gupta, DOI:<http://adsabs.harvard.edu/abs/2014ASInC...13..309M>

54. Kanan K. Datta, Hannes Jensen, **Suman Majumdar**, Garreht Mellema, Illian T. Iliev, *Does the light cone effect make reionization HI 21-cm power spectrum anisotropic?*, **ASI Conference Series**, Vol. 13, pp. 313-314, (2014), Edited by J. N. Chengalur & Y. Gupta, DOI:<http://adsabs.harvard.edu/abs/2014ASInC..13..313D>
55. **Suman Majumdar**, Somnath Bharadwaj, T. Roy Choudhury, *Simulating matched filter detection of ionized bubble around a quasar in the epoch of reionization*, **Journal of Physics Conference Series**, 405, 012021 (2012), DOI:<http://iopscience.iop.org/article/10.1088/1742-6596/405/1/012021>
56. Kanan K. Datta, **Suman Majumdar**, Somnath Bharadwaj, T. Roy Choudhury, *Searching for Ionized Bubbles in 21-cm Maps*, **The Low-Frequency Radio Universe ASP Conference Series**, 407, 39 (2009), DOI:<http://adsabs.harvard.edu/abs/2009ASPC..407..39D>

Total 68 talks/seminars (24 Invited, 18 Colloquia and 26 Contributed).

2024

Invited(2):

- Conference on “Gravity, Cosmology and Raychaudhuri’s Equation” on the occasion of the birth centenary of the late Professor Amal Kumar Raychaudhuri, Department of Physics, Jadavpur University, Kolkata (India).
- NORDITA program on “Cosmic Dawn at High Latitudes”, NORDITA and Stockholm University, Stockholm (Sweden).

2023

Invited(3):

- Conference on “GW-EM-Nu-2023: Role of India in Multi-Messenger Astrophysics and Cosmology”, Tata Institute of Fundamental Research, Mumbai, (India).
- International Conference on “Frontiers in Cosmology”, Raman Research Institute, Bengaluru, (India).
- International Conference on “Largest Cosmological Surveys and Big Data Science”, International Centre for Theoretical Sciences of the Tata Institute of Fundamental Research (ICTS-TIFR), Bengaluru, (India).

2022

Invited(2):

- Workshop on 21-cm Cosmology in the SKA Era, Technology Innovation Hub - Indian Statistical Institute, Kolkata, (India).
- Workshop on Applications of Artificial Intelligence and Machine Learning, IIT Indore, Indore, (India).

2021

Colloquia(2):

- Department of Physics and Astronomy, Uppsala University, Uppsala, (Sweden).
- Department of Astronomy, Stockholm University, Stockholm, (Sweden).

Invited(5):

- Invited lectures in the Technology Innovation Hub - Indian Statistical Institute organized School and Workshop on Cosmology, Indian Statistical Institute, Kolkata, (India).
- Workshop on the HI 21-cm Cosmology and Reionization, Indian Institute of Science, Bengaluru, (India).
- South Western Institute for Astronomy Research, Yunnan University, (China).
- Winter School on Observational Astronomy, Varahamihir Astronomical Observatory, Dongla and Ujjain Planetarium, Madhya Pradesh, (India).
- TEQIP-III Sponsored Workshop on Astroparticle Physics and Cosmology, National Institute of Technology, Meghalaya, Shillong, (India).

Contributed(1):

- SKA 2021 science conference “A precursor view of the SKA sky”, SKA Global Headquarters, Manchester, (UK).

2020

Invited(4):

- Invited lectures in the faculty training programme on “Artificial Intelligence and Machine Learning”, NPIU/TEQIP, Indian Institute of Technology Indore, (Indore, India).
- Invited lectures in the faculty training programme on “Data Science and Analytics”, NPIU/TEQIP, Indian Institute of Technology Indore, (Indore, India).

- Invited lectures in the AICTE-QIP short term course on “Satellite Based Navigation System”, Indian Institute of Technology Indore, (Indore, India).
- Invited lectures in the international school on “The First Billion Years of the Universe Using Next Generation Telescopes”, Indian Institute of Technology Indore, (Indore, India).

Colloquia(1):

- Department of Astronomy, Astrophysics and Space Engineering, Indian Institute of Technology Indore, (Indore, India).

2019

Invited(1):

- URSI-Asia Pacific Radio Science Conference (India Habitat Centre, New Delhi, India).

Colloquia(3):

- Scuola Internazionale Superiore di Studi Avanzati (SISSA), (Trieste, Italy).
- Institute for Fundamental Physics of the Universe, (Trieste, Italy).
- High Energy, Cosmology and Astroparticle Physics Group, International Centre for Theoretical Physics, (Trieste, Italy).

Contributed(1):

- SKA General Science Meeting and Key Science Workshop (SKA Global Headquarters, Manchester, UK).

2018

Invited(3):

- Frontiers in 21 cm Cosmology Workshop (Kodaikanal Solar Observatory, Indian Institute of Astrophysics, Kodaikanal, India).
- Lectures in the Frontiers in 21 cm Cosmology School (Kodaikanal Solar Observatory, Indian Institute of Astrophysics, Kodaikanal, India).
- The Epoch of Reionisation: UK community update (Royal Astronomical Society, London, UK).

2017

Invited(2):

- Universe after the first 200 million years (Presidency University, Kolkata, India).
- UK SKA Science Community Workshop (Royal Observatory of Edinburgh, UK).

Colloquia(2):

- Centre of Astronomy, (Indian Institute of Technology Indore, Indore, India).
- Astrophysics Group, Department of Physics (Imperial College London, UK).

Contributed(3):

- IAU Symposium 333: Peering towards Cosmic Dawn (Dubrovnik, Croatia).
- National Astronomy Meeting 2017 (University of Hull, UK).
- LOFAR EoR Plenary Meeting (Technion, Haifa, Israel).

2016

Invited(1):

- Mullard Space Science Laboratory (University College London, UK).

Colloquia(3):

- Department of Physics (Indian Institute of Technology Bombay, Mumbai, India).
- Department of Physics (Indian Institute of Technology Madras, Chennai, India).
- Department of Physics (Indian Institute of Technology (BHU), Varanasi, India).

Contributed(2):

- SKA 2016: Science for the SKA Generation (Goa, India).
- Workshop on Cosmic Reionization (Munich Institute for Astro- and Particle Physics, Garching, Germany).

2015

Invited(1):

- Cosmology with the HI 21-cm Line (Raman Research Institute, Bangalore, India).

Colloquia(1):

- Department of Physics (University of Western Cape, South Africa).

Contributed(3):

- Advanced Workshop on Cosmological Structures from Reionization to Galaxies (ICTP, Trieste, Italy).
- The Olympian Symposium on Cosmology and the Epoch of Reionization (Paralia Katerini, Greece).
- Reionization: A Multiwavelength Approach (Kruger Park, South Africa).

2014

Colloquia(3):

- Asia Pacific Center for Theoretical Physics (Pohang University of Science and Technology, Pohang, Korea).
- Korea Astronomy and Space Science Institute (Daejeon, Korea).
- Centre for Theoretical Physics (Jamia Millia Islamia, New Delhi, India).

Contributed(3):

- LOFAR EoR Plenary Meeting (Spineto, Italy).
- Workshop on Cosmology and Structure Formation (Korea Institute for Advanced Study, Seoul, Korea).
- LOFAR EoR Plenary Meeting (Kapteyn Institute, Groningen, The Netherlands).

2013

Colloquia(1):

- Department of Astronomy, Stockholm University (Sweden).

Contributed(5):

- Cosmology for all (Lund University, Lund, Sweden).
- LOFAR EoR Science Meeting (Max Planck Institute for Astrophysics, Garching, Germany).
- LOFAR EoR Plenary Meeting (Sitges, Spain).
- Astronomdagarna (Lund University, Lund, Sweden).
- The Metre Wavelength Sky (National Centre for Radio Astrophysics - Tata Institute of Fundamental Research, Pune, India).

2012

Colloquia(1):

- IUCAA Resource Centre (Delhi University, New Delhi, India).

Contributed(1):

- COSGRAV 12 (Indian Statistical Institute, Kolkata, India).

2011

Colloquia(1):

- Astro-Group at Harish-Chandra Research Institute (Allahabad, India).

Contributed(2):

- 7th International Conference on Gravitation and Cosmology (Goa, India).

- 26th Indian Association for General Relativity and Gravitation Meeting (Harish-Chandra Research Institute, Allahabad, India).

2010

Contributed(3):

- Cosmological Reionization (Harish-Chandra Research Institute, Allahabad, India).
- SERC School on Astronomy and Astrophysics (National Centre for Radio Astrophysics - Tata Institute of Fundamental Research, Pune, India).
- Department of Physics (Indian Institute of Technology Kharagpur, India).

2009

Contributed(2):

- Research Scholar Day (Indian Institute of Technology Kharagpur, India);
- Young Astronomers Meet 2009 (Indian Institute of Technology Kharagpur, India).