# Work Address

Dream Institute of Technology, Thakurpukur, B.H Road
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## DR. ALOK SARDAR

## Objective

Contribute to the academic excellence of the institution by fostering a student-friendly, interactive, and technology-enabled learning environment. I am committed to inspiring students through innovative teaching methods, promoting critical thinking, problem-solving, and lifelong learning, while mentoring them to achieve their academic and personal goals. I strive continuously to improve my professional knowledge, research capabilities, and teaching practices to contribute effectively to the growth of both my students and the institution.

## Teaching Experiences

- Working as an Assistant Professor in the Department of Mathematics, Dream Institute of Technology, Thakurpukur, Kolkata since 12.08. 2025 till date.
- Worked as a Teaching Assistant in the Department of Mathematics, Indian Institute of Engineering Science and Technology, Shibpur from July to December 2022.

## Academic Qualifications

- Ph.D. from Indian Institute of Engineering Science and Technology, Shibpur in 2025
- M.Sc. in Mathematics from Ballygunge Science College, Calcutta University in 2018
- B.Sc.(Hons.) from Maulana Azad College, Calcutta University in 2016

## Area of Research

- Cosmology and Astrophysics, Cosmological study of various Dark Energy and Modified Gravity theories, Dynamical System Analysis, Application of Data Science and AI in cosmology.
- Orcid Id: https://orcid.org/0000-0001-7659-7606
- ResearchGate: https://www.researchgate.net/profile/Alok-Sardar-2
- According to Google Scholar citations: 135, h-index: 6, i10-index: 4

## Research Publications

### Published Articles

1. A. Kotal, A. Sardar, A. Malakar, and U. Debnath, "Parameter estimation of Barrow Agegraphic and New Barrow Agegraphic Dark Energy models in fractal universe: Correspondence with scalar field models," *Nucl. Phys. B*, vol. 1018, p. 117 024, 2025. DOI: 10.1016/j.nuclphysb.2025.117024.
2. A. Sardar, S. Maity, U. Debnath, and A. Pradhan, "Different horizon cut-offs for Tsallis, Rényi and Sharma-Mittal holographic dark energies in Hořava-Lifshitz gravity," *Annals Phys.*, vol. 473, p. 169 891, 2025. DOI: 10.1016/j.aop.2024.169891.

3. A. K. Singha, A. Sardar, U. Debnath, and A. Pradhan, "Cosmological dynamics of FRW universe in presence of tachyonic field," *Phys. Scripta*, vol. 100, no. 1, p. 015 038, 2025. DOI: 10.1088/1402-4896/ad9e3b.

4. M. Khurana, H. Chaudhary, U. Debnath, A. Sardar, and G. Mustafa, "Exploring Late-Time Cosmic Acceleration with Eos Parameterizations in Horava-Lifshitz Gravity via Baryon Acoustic Oscillations," *Fortsch. Phys.*, vol. 72, no. 2, p. 2 300 238, 2024. DOI: 10.1002/prop.202300238. arXiv: 2310.11413 [astro-ph.CO].

5. A. Sardar and U. Debnath, "Constraining the entropy corrected (m, n)-type pilgrim dark energy in fractal cosmology," *Eur. Phys. J. C*, vol. 84, no. 10, p. 1074, 2024. DOI: 10.1140/epjc/s10052-024-13405-1.

6. A. Sardar, T. Roy, and U. Debnath, "Cosmography for various parametrizations of dark energy equation of state," *Int. J. Geom. Meth. Mod. Phys.*, vol. 21, no. 02, p. 2 450 051, 2024. DOI: 10.1142/S0219887824500518.

7. S. Sarkar, A. Sardar, S. Maity, and U. Debnath, "DBI-essence Inflation in Loop Quantum Cosmology: Warm Intermediate and Logamediate Scenarios," *Physica Scripta*, 2024. DOI: 10.1088/1402-4896/ada211.

8. A. Bouali, H. Chaudhary, U. Debnath, A. Sardar, and G. Mustafa, "Data analysis of three parameter models of deceleration parameter in FLRW universe," *Eur. Phys. J. Plus*, vol. 138, no. 9, p. 816, 2023. DOI: 10.1140/epjp/s13360-023-04442-y. arXiv: 2304.13137 [gr-qc].

9. T. Roy, A. Sardar, and U. Debnath, "Thermodynamic overview and heat engine efficiency of Kerr–Sen–AdS black hole," *Int. J. Geom. Meth. Mod. Phys.*, vol. 20, no. 08, p. 2 350 136, 2023. DOI: 10.1142/S0219887823501360.

10. A. Sardar, P. Saha, U. Debnath, and A. Pradhan, "Study of Yang–Mills condensate dark energy in the framework of generalized Brans–Dicke theory," *Int. J. Geom. Meth. Mod. Phys.*, vol. 20, no. 14, p. 2 450 003, 2023. DOI: 10.1142/S0219887824500038.

11. A. K. Singha, A. Sardar, and U. Debnath, "f(Q) Reconstruction: In the light of various modified gravity models," *Phys. Dark Univ.*, vol. 41, p. 101 240, 2023. DOI: 10.1016/j.dark.2023.101240.

12. A. Sardar and U. Debnath, "Reconstruction of extended f(P) cubic gravity from other modified gravity models," *Phys. Dark Univ.*, vol. 35, p. 100 926, 2022. DOI: 10.1016/j.dark.2021.100926.

13. A. Sardar and U. Debnath, "Cosmological consequences of Rényi, Sharma–Mittal holographic and new agegraphic dark energy models in generalized Rastall gravity," *Mod. Phys. Lett. A*, vol. 36, no. 25, p. 2 150 180, 2021. DOI: 10.1142/S0217732321501807.

### Communicated Articles

1. A. Sardar, S. Chakraborty, and U. Debnath, "Observational Insights into entropy corrected holographic and new agegraphic dark energy in Myrzakulov gravity," in *The European Physical Journal C Plus*, 2026.

2. A. Sardar, R. Mondal, and U. Debnath, "Correspondence between modified chaplygin-jacobi and modified chaplygin-abel gases with scalar field dark energies in $D$-dimensional fractal universe," in *Physical Review D*, 2026.

## Conference Participation

- 27th International Conference of International Academy of Physical Sciences, Department of Mathematics, BITS-Pilani, Hyderabad Campus on Advances in Relativity and Cosmology.
- 2-Day National Workshop Titled 'Gravity, Cosmology and Raychaudhuri's Equation' on the occasion of the birth centenary of late Professor Amal Kumar Raychaudhuri, March 13-14, 2024 Organized by Relativity and cosmology Research Centre, Department of Physics, Jadavpur University, Kolkata – 700032.
- International Workshop on Mathematical Foundations and Applications of Gravity (MFAG-2022) Sponsored by DST-SERB (25th-26th August, 2022) Department of Basic Sciences & Social Sciences (BSSS) Eastern Hill University (NEHU), Shillong.
- International Workshop on Emerging Trends in Gravitation and Cosmology, December 16-19, 2021 Organized by The Department of Mathematics Presidency University, Kolkata, India.

## Skills

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| Languages | Strong reading, writing and speaking competencies for Bengali, English, and Hindi |
| Coding | C-programming, Python, Mathematica, LaTeX, … |
| Misc. | Academic research, teaching, training, consultation, LaTeX typesetting and publishing. |

## Scholarships and Awards

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| 2019–2024 | Junior Research Fellowship, Award No. 08/003(0138)/2019-EMR-I |
| 2017 | Lectureship (LS) |

## Personal Details

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| Permanent Address | Vill-Gutri, P.O-Deuli, P.S-Jibantala, Dist-24 PGS (S), Pin-743502, West Bengal, India |
| Present Address | Room No. 203, Vinayak Apartment, Samali Hospital More, Bibirhat Bakhrahat Road, Kolkata-700104, West Bengal, India |
| Date of Birth | 25.04.1994 |
| Parents Name | Mr. Pancham Sardar & Mrs. Pramila Sardar |

## Courses Taken

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| UG | Linear Algebra & Calculus (BS-M101), Partial Differential Equation & Z-transformation (BS-M301), Multivariate Calculus & Ordinary Differential Equation (BS-M202), Probability & Statistics (BS-M301), Complex Analysis (BS-M202), Numerical Methods (OECIT-601A) |
| PG | Advanced Engineering Mathematics (MVLSI101) |

## References


- **Dr. Ujjal Debnath**, Professor, Department of Mathematics, Indian Institute of Engineering Science and Technology, Shibpur, ujjaldebnath@gmail.com 9433353462
- **Dr. Pritha Das**, Professor, Department of Mathematics, Indian Institute of Engineering Science and Technology, Shibpur, prithadas01@yahoo.com 9831022438


## Declaration

I declare that all the details furnished above are true to the best of my knowledge and belief.

Place: 24 PGS (S), W.B., India

Alok Sardar

(Alok Sardar)

Date: August 11, 2026