

Ashis Saha

Curriculum Vitae

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Basic information

Gender: **Male.**

DOB: **5th April, 1994.**

Present affiliation: **Assistant Professor I, Department of Physics, Adamas University, Kolkata 700126, WB, India.**

Education

2018–2023: **Ph.D. in Theoretical Physics**, *University of Kalyani*, WB, India.
AdS/CFT duality, Holographic computation of Information theoretic quantities, General Relativity.

2014–2016: **M.Sc. in Physics**, *University of Kalyani*, WB, India.
Special paper: Astrophysics and Cosmology

Percentage: 72.38% (First class)

2011–2014: **B.Sc. with Physics Honours**, *University of Kalyani*, WB, India.

Percentage: 68% (First class)

Research Experience

Physics and Applied Mathematics Unit (PAMU), Indian Statistical Institute, Kolkata

Duration: **November, 2025 – December, 2025.**

Designation: **Visiting Scientist.**

Mentor: **Dr. Suddhasattwa Brahma** ([Personal Web-page](#))

S. N. Bose National Centre for Basics Sciences, Kolkata

Duration: **October, 2023 – October, 2025.**

Designation: **Postdoctoral Research Associate 1.**

Mentor(s) : **Prof. Sunandan Gangopadhyay** ([Personal Web-page](#))

Prof. Rabin Banerjee ([Personal Web-page](#))

PhD: Department of Physics, University of Kalyani

Duration: **March, 2018 – June, 2023.**

Thesis title: ***Holographic Investigation of Some Information Theoretic Quantities.***

Supervisor : **Prof. Jyoti Prasad Saha**, ([Personal Web-page](#))

Teaching experience

- Jan, 2026 – **Assistant Professor**, *Department of Physics, Adamas University*, **Student class:** B.Sc. (Physics), present: M.Sc. (Physics), B.Tech..
- Sep, 2022 – **Guest Teacher**, *Department of Physics, University of Kalyani*, **Student class:** M.Sc. (Physics),
Sep, 2023: **Topics:** Advance Quantum mechanics (2nd sem), Cosmology (4th sem special paper).
- Mar, 2020 – **Guest Teacher**, *Department of Engineering & Technological Studies (DETS), University of Kalyani*, **Student class:** B.Tech. students, **Topics:** PH 201 (Quantum mechanics, Solid state physics) & PH 202 (Physics lab).
- Aug, 2016 – **Assistant Professor of Physics**, *Department of Basic Science & Humanities, Ideal Institute of Engineering*,
Feb, 2018: **Student class:** B.Tech. students, **Topics:** Engineering Physics & Physics lab.

Fellowships & Awards

- 2025 **Media coverage in the Science Magazine**, "Gauge Interactions & Galilean Limit: A New Outlook" [Weblink](#)
- 2024 **Top Cited Paper Award (Physics)**, Awarded by IOP Publishing. [Weblink](#)
- 2023 – 2025 **Postdoctoral Fellowship**, Awarded by DST, Government of India.
- 2020 – 2023 **CSIR Senior Research Fellowship**, Awarded by CSIR, Government of India.
- 2018 – 2020 **CSIR Junior Research Fellowship**, Awarded by CSIR, Government of India.
- 2016 **Joint CSIR-UGC Lectureship (Physical Sciences)**, Awarded by CSIR, Government of India.
- 2014 – 2016 **Merit-cum-Means Scholarship for Post-graduation**, Awarded by Government of West Bengal, India.

Computer skills

Softwares & interfaces LaTeX, Mathematica, GNUPlot.

Schools & Conferences

- 19-23 Dec, 2024: Talk at "**XXVI DAE-BRNS HEP Symposium 2024**", BHU Varanasai India.
- 17-19 Mar, 2023: Poster presentation at "**12th Field Theoretic Aspects of Gravity (FTAG XII)**", BIT Mesra, India.
- 8-10 Feb, 2022: Talk at "**Future Trends in Gravitational Physics**", S. N. Bose National Centre for Basic Sciences, India.
- 2020: Poster presentation at the "**XXIV DAE-BRNS HEP Symposium 2020**" NISER Bhubaneswar, India.
- 2020: Participated at the "**Spring School on Superstring Theory and Related Topics 2020**", ICTP, Italy.
- 3-14 Feb, 2019: Poster presentation at "**National Physics Meet**", University of Kalyani, India.
- 03-07 Dec, 2018: Talk "**Current developments in Quantum Field Theory and Gravity**", S. N. Bose National Centre for Basic Sciences, India.

Contribution as a reviewer in journals:

- International Journal of Modern Physics A, World Scientific.
- Journal of Physics A, IOP Science.
- Classical and Quantum Gravity, IOP Science.

- **Advances in High Energy Physics, Wiley.**
- **Physics of the Dark Universe, Elsevier.**
- **Journal of Holography Applications in Physics, Damghan University.**
- **Indian Journal of Physics.**

Area of research:

My main area of interest has been various aspects and applications of the gauge/gravity duality. To be specific, in context of Quantum Information theory, chaos and hydrodynamics. I have also worked on some topics related to black hole physics, such as, black hole shadow, thermodynamic aspects of black holes etc. Recently, I have also started to work on various aspects of non-Lorentzian QFTs which appear in the Galilean and Carrollian limits.

References:

1. Prof. Jyoti Prasad Saha, Department of Physics, University of Kalyani, WB, India
email: jyotiprasadsaha@gmail.com
2. Prof. Rabin Banerjee, S. N. Bose National Centre for Basic Sciences, Kolkata, India
email: rabin@bose.res.in
3. Prof. Sunandan Gangopadhyay, S. N. Bose National Centre for Basic Sciences, Kolkata, India
email: sunandan.gangopadhyay@bose.res.in
4. Dr. Suddhasattwa Brahma, PAMU, Indian Statistical Institute Kolkata, India
email: suddhasattwa.brahma@gmail.com

List of Publications

No. of articles: 29 (Published: 27, Under review: 2) Google Scholar: **Ashis Saha**

Works related to gauge/gravity duality & QFT

- **A. Saha**, R. Banerjee & S. Gangopadhyay, "Null reduction and dynamical realization of Carrollian conformal symmetries", **European Physical Journal C** **86** (2026) **1**, 72.
- A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Holographic Brownian dynamics of a heavy particle in a boosted thermal plasma background", **arXiv: 2509.20889 [hep-th]** (under review).
- **A. Saha**, S. Gangopadhyay, "Effect of non-conformal deformation on the gapped quasinormal modes and its holographic implications", **arXiv: 2506.09431 [hep-th]** (under review).
- **A. Saha**, R. Banerjee, S. Gangopadhyay, "Gauge interactions and the Galilean limit", **European Physical Journal C** **85** (2025) **10**, 1140.
- **A. Saha**, A. RoyChowdhury & S. Gangopadhyay, "A holographic realization of correlation and information", **Physics Letters B** **870** (2025) 139933.
- **A. Saha**, A. RoyChowdhury & S. Gangopadhyay, "Investigating the role of mutual information in the Page curve for a functional renormalization group improved Schwarzschild black hole", **European Physical Journal C** **85** (2025) **8**, 837.
- **A. Saha** & S. Gangopadhyay, "Quantum chaos in the presence of nonconformality", **Physical Review D** **110** (2024) **2**, 026025.

- S. Paul, A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Information theoretic measures for Lifshitz system", **Journal of High Energy Physics** **10** (2024) 033.
- A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Mixed state entanglement measures for the dipole deformed supersymmetric Yang–Mills theory", **Annals of Physics** **460** (2024) 169565.
- A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Mutual information of subsystems and the Page curve for the Schwarzschild–de Sitter black hole", **Physical Review D** **108** (2023) 2, 026003.
- A. Srivastava, S. Gangopadhyay & **A. Saha**, "Born–Infeld corrections to holographic transport coefficients with spatially modulated chemical potential", **European Physical Journal C** **83** (2023) 6, 458.
- A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Mixed state information theoretic measures in boosted black brane", **Annals of Physics** **452** (2023) 169270.
- **A. Saha**, S. Gangopadhyay & J.P. Saha, "Mutual information, islands in black holes and the Page curve", **European Physical Journal C** **82** (2022) 5, 476.
- A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Role of mutual information in the Page curve", **Physical Review D** **106** (2022) 8, 086019.
- A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Entanglement wedge cross-section for noncommutative Yang–Mills theory", **Journal of High Energy Physics** **02** (2022) 192.
- **A. Saha** & S. Gangopadhyay, "Holographic study of entanglement and complexity for mixed states", **Physical Review D** **103** (2021) 8, 086002.
- D. Jain, S. Gangopadhyay & **A. Saha**, "Universal pieces of holographic entanglement entropy and holographic subregion complexity", **Physical Review D** **102** (2020) 4, 046002.
- **A. Saha**, S. Gangopadhyay & J.P. Saha, "Generalized entanglement temperature and entanglement Smarr relation", **Physical Review D** **102** (2020) 8, 086010.
- **A. Saha** & S. Gangopadhyay, "Holographic computation of Wilson loops in a background with broken conformal invariance and finite chemical potential", **Physical Review D** **101** (2020) 086022.
- **A. Saha**, S. Karar & S. Gangopadhyay, "Bulk geometry from entanglement entropy of CFT", **European Physical Journal Plus** **135** (2020) 2, 132.
- **A. Saha**, S. Gangopadhyay & J.P. Saha, "Holographic entanglement entropy and generalized entanglement temperature", **Physical Review D** **100** (2019) 10, 106008.

Works related to theoretical astrophysics:

- S. Paul, S. Gangopadhyay & **A. Saha**, "Gauss–Bonnet AdS planar and spherical black hole thermodynamics and holography", **Classical and Quantum Gravity** **41** (2024) 23, 235010.
- S. Sen, **A. Saha** & S. Gangopadhyay, "Signatures of quantum geometry from exponential corrections to the black hole entropy", **General Relativity & Gravitation** **56** (2024) 57.
- A. Das, **A. Saha** & S. Gangopadhyay, "Investigation of circular geodesics in a rotating charged black hole in the presence of perfect fluid dark matter", **Classical and Quantum Gravity** **38** (2021) 6, 065015.
- A. Das, **A. Saha** & S. Gangopadhyay, "Shadow of Kottler black hole in the presence of plasma for a co-moving observer", **Classical and Quantum Gravity** **40** (2023) 1, 015008.
- A. Das, **A. Saha** & S. Gangopadhyay, "Study of circular geodesics and shadow of rotating charged black hole surrounded by perfect fluid dark matter immersed in plasma", **Classical and Quantum Gravity** **39** (2022) 7, 075005.

- A. RoyChowdhury, **A. Saha** & S. Gangopadhyay, "Entropy function from the Einstein boundary term", **Europhysics Letters** **134** (2021) **6**, 60003.
- A. Das, **A. Saha** & S. Gangopadhyay, "Shadow of charged black holes in Gauss–Bonnet gravity", **European Physical Journal C** **80** (2020) **3**, 180.
- **A. Saha**, S. Madhav Modumudi & S. Gangopadhyay, "Shadow of a noncommutative geometry inspired Ayón Beato García black hole", **General Relativity & Gravitation** **50** (2018) **8**, 103.

Conference proceedings:

- A. Saha, "Chaos, Nonconformality and Holography", **Springer Proc.Phys.** **432** (2026) 459-462.
- A. Saha, "Mutual Information and the Page Curve", **Springer Proc.Phys.** **432** (2026) 472-475.