

CURRICULUM VITAE

Aninda Sinha

Affiliation: Centre for High Energy Physics,
Indian Institute of Science,
Bangalore 560012, India.

DOB: March, 1977
Nationality: Indian

Position: Professor.

Phone: +91 80 22932851

Email: asinha@iisc.ac.in

• PRESENT

1. **Full Professor**:2022/Jan-Present
2. **Adjunct Professor**:2024/Feb-Present: Univ. of Calgary.

• PREVIOUS

1. **Assistant professor with tenure**: 2010/Dec-2016/Jan
2. **Associate professor**: 2016/Jan-2022/Jan
3. **Postdoctoral Fellow**, Perimeter Institute for Theoretical Physics, Waterloo, Canada, 2007-2010.
4. **PPARC Postdoctoral Fellow and Gonville and Caius College Fellow**, Cambridge University, UK, 2004-2007.

• EDUCATION

1. Jadavpur University, Calcutta, 1996-1999
 - B.Sc., Physics Honours (placed first, University gold medal)
 2. Cambridge University, UK, 1999-2001
 - BA, MA, Certificate of Advanced Study in Mathematics–Part III Applied Mathematics (placed first with distinction, Mayhew prize)
 3. Cambridge University, UK, 2001-2004 (degree officially conferred 2005)
 - PhD in Theoretical Physics, advisor Professor Michael Green, DAMTP
 - Thesis title: "Aspects of IIB Plane-Wave String Theory"
-

• AWARDS and RECOGNITION

1. Fellow, Indian Academy of Sciences, 2024.
2. SSB Prize, 2019: Recipient of the Shanti Swarup Bhatnagar Prize, 2019 (this was the highest science prize given by Govt of India until 2024), CSIR, India.
3. ICTP Prize, 2016: Awarded the ICTP Prize in honor of Nobel Laureate Kenneth Wilson by the International Centre for Theoretical Physics, Trieste, Italy.
4. Swarnajayanti Fellowship, 2015-2020: Awarded by Department of Science and Technology, Government of India.
5. Simons Associate, 2014-2016: Elected as a Simons Associate at the International Centre for Theoretical Physics, Trieste, Italy.
6. Ramanujan Fellowship, 2010-2015: Awarded the Ramanujan Fellowship by the Department of Science and Technology, Government of India.
7. PPARC Postdoctoral Fellowship, 2004-2007: Held a PPARC Postdoctoral Fellowship at DAMTP, Cambridge. Also awarded the Gonville and Caius College Postdoctoral Research Fellowship during the same period.
8. Rayleigh-Knight Essay Prize, 2003: Received the Rayleigh-Knight Essay Prize at DAMTP, Cambridge, for an essay based on PhD work completed during the 2nd year of the PhD program.
9. Scholarships during PhD, 2001-2004: Gates Cambridge Scholarship awarded by the Bill and Melinda Gates Foundation, as well as the Perse and Matthews Scholarships from Gonville and Caius College, Cambridge.
10. Mayhew Prize, 2001: Recognized with the Mayhew Prize for outstanding proficiency in applied mathematics during the Mathematics Tripos Part III at Cambridge University.
11. Nehru Chevening Scholarship, 1999-2001: Awarded the Nehru Chevening Scholarship to pursue master's studies at Cambridge University.
12. Bachelor of Science, 1996-1999: Graduated with a First Class Honors with Distinction in Bachelor of Science from Jadavpur University, Calcutta, India. Also received the University Gold Medal for standing first in the order of merit, the Sibapriya Chatterjee Memorial Bronze Medal for standing first in physics, and the D.N. Dey Memorial Gold Medal for achieving the highest aggregate marks.

• EDITORIAL ASSIGNMENTS

1. 2023-present, Editorial board, SciPost Physics.
2. 2018-2021, Editorial board, New Journal of Physics.

• LAST 5 YEARS RESEARCH PUBLICATIONS¹

JOURNALS²

1. **“Field theory expansions of string theory amplitudes”**
A. P. Saha and A. Sinha,
[Phys. Rev. Lett. **132**, 22, 221601 \(2024\)](#)
[arXiv:2401.05733 [hep-th]].
2. **“Bootstrapping high-energy observables,”**
F. Bhat, D. Chowdhury, A. Sinha, S. Tiwari and A. Zahed,
JHEP **03**, 157 (2024)
[arXiv:2311.03451 [hep-th]].
3. **“Positivity, low twist dominance and CSDR for CFTs,”**
A. Bissi and A. Sinha,
SciPost Phys. **14**, 083 (2023)
arXiv:2209.03978 [hep-th].
4. **“Dispersion relations, knot polynomials and knot theory,”**
A. Sinha,
Phys. Rev. D **106**, no.12, 126019 (2022)
arXiv:2204.13986 [hep-th].
5. **“Celestial insights into the S-matrix bootstrap,”**
S. Ghosh, P. Raman and A. Sinha,
JHEP **08**, 216 (2022)
arXiv:2204.07617 [hep-th].
6. **“Selected Topics in Analytic Conformal Bootstrap: A Guided Journey,”** *
A. Bissi, A. Sinha and X. Zhou,
[Phys. Rept. **991**, 1-89 \(2022\)](#)
arXiv:2202.08475 [hep-th], invited review, Physics Reports.
7. **“Crossing Symmetric Spinning S-matrix Bootstrap: EFT bounds,”** *
S. D. Chowdhury, K. Ghosh, P. Haldar, P. Raman and A. Sinha,
SciPost Phys. **13**, 051 (2022)
arXiv:2112.11755 [hep-th].
8. **“QFT, EFT and GFT,”**
P. Raman and A. Sinha,
JHEP **12**, 203 (2021)
arXiv:2107.06559 [hep-th].
9. **“Quantum field theory and the Bieberbach conjecture,”**
P. Haldar, A. Sinha and A. Zahed,
SciPost Phys. **11**, 002 (2021)
arXiv:2103.12108 [hep-th]

¹**TOTAL cits (google-scholar): \approx 6200 . h index: 42**

²** \equiv > 500 cits * \equiv > 250 cits * \equiv > 100 cits; * \equiv > 50 cits

10. **“Crossing Symmetric Dispersion Relations for Mellin Amplitudes,”***
R. Gopakumar, A. Sinha and A. Zahed,
[Phys. Rev. Lett. **126**, 21, 211602 \(2021\)](#)
arXiv:2101.09017 [hep-th]
11. **“Crossing Symmetric Dispersion Relations in QFTs”***
A. Sinha and A. Zahed,
[Phys.Rev.Lett. **126** 18, 181601 \(2021\)](#)
arXiv:2012.04877 [hep-th].
12. **“Selection rules for the S-Matrix bootstrap”**
A. Bose, A. Sinha and S. S. Tiwari
SciPost Phys. **10**, no.5, 122 (2021)
arXiv:2011.07944 [hep-th].
13. **“Relative entropy in scattering and the S-matrix bootstrap,”**
A. Bose, P. Haldar, A. Sinha, P. Sinha and S. S. Tiwari
SciPost Phys. **9**, 081 (2020)
arXiv:2006.12213 [hep-th].
14. **“Crossing symmetry, transcendentality and the Regge behaviour of 1d CFTs,”**
P. Ferrero, K. Ghosh, A. Sinha and A. Zahed
JHEP **07**, 170 (2020)
arXiv:1911.12388 [hep-th].
15. **“Froissart bound for/from CFT Mellin amplitudes”**
P. Haldar and A. Sinha.
SciPost Phys. **8**, 095 (2020)
arXiv:1911.05974 [hep-th]
16. **“Renormalized Circuit Complexity”***
A. Bhattacharyya, P. Nandy and A. Sinha.
arXiv:1907.08223 [hep-th]
[Phys. Rev. Lett. **124**, no. 10, 101602 \(2020\)](#)
17. **“Positive geometry in the diagonal limit of the conformal bootstrap”**
K. Sen, A. Sinha and A. Zahed.
arXiv:1906.07202 [hep-th]
JHEP **1911**, 059 (2019)

OUTREACH ARTICLES

1. **“Bootstrapping Quantum Field Theory: Past, Present and Future”**
B. Ananthanarayan and A. Sinha
CURRENT SCIENCE, VOL. 126, NO. 8, 25 APRIL 2024

PhD and postdocs supervision

PhD:

- Debapriyo Chowdhury for PhD, IISc, 2021-.
- Faizan P Bhat for PhD, IISc, 2020-.
- Pingal Pratyush Nath for PhD, IISc, 2019-.
- Pratik Nandy for PhD, IISc, 2017-2021. YITP, Kyoto as postdoc
- Ahmadullah Zahed for PhD, IISc, 2017-2023. ICTP as postdoc
- Parthiv Halder for PhD, IISc, 2016-2021. NCTS, Taiwan as postdoc
- Kausik Ghosh for PhD, IISc, 2017-2020. Postdoc at ENS, Paris.
- Apratim Kaviraj for PhD, IISc, 2011-2017 (ENS, Simons Bootstrap collaboration postdoc, presently postdoc in DESY Hamburg), best thesis medal, IISc 2017-2018. Indian Physics Association Rahul Basu memorial best thesis award for high energy physics between the period 2016-2018. Now at IIT Kanpur as faculty.
- Kallol Sen for PhD, IISc, Dec 2010-2016 (postdocs IPMU, Tokyo, Japan, Trinity College Dublin, ICTP Brazil, currently consultant at RRI), best thesis medal, IISc 2016-2017.
- Arpan Bhattacharyya or PhD, IISc, Dec 2010-2015, JSPS postdoc at YITP, Kyoto, now faculty IIT Gandhinagar

Postdocs:

- Partha Paul, IOE postdoc (PhD, IOP Bhubaneswar), September 2022-.
- Arkajyoti Manna, SERB project postdoc (PhD, IMSc) May 2022-.
- Sudip Ghosh, Raman postdoc (PhD, ICTS) October 2021-September 2023, joining Technion, Haifa, Israel as postdoc.
- Prashanth Raman, IOE postdoc (PhD, IMSc) March 2021-March 2023, joining AEI Munich as postdoc.
- Atanu Bhatta (PhD, IMSc) October 2018- June 2020.
- Amin Nizami (PhD, Cambridge) September 2017-July 2018 (currently faculty Ashoka Univ).
- Parijat Dey (PhD, Saha Institute) September 2015-September 2018 (Uppsala, Sweden as postdoc, Durham as Willmore fellow, now at SN Bose Institute as faculty).
- Dibakar Roychoudhury (PhD, Bose Institute) July 2014-June 2015 (now faculty in IIT Roorkee.).
- Menika Sharma (PhD, Arizona) June 2012-July 2013 (now in UK).
- Shubho Roy (PhD, Brown) Oct 2012-July 2014 (presently faculty at IIT-Hyd).

OTHER ACADEMIC ACTIVITIES

Referee for JHEP, Physical Review Letters, Nature Physics, Physical Review D, Physical Review B, Reviews of Modern Physics, Nuclear Physics B, Physics Letters B, Annals of Physics, Classical and Quantum Gravity, Foundations of Physics, MPLB, IJMPA, Indian Journal of Physics, Canadian Journal of Physics, European Journal of Physics.

- Named one of most valued reviewers, Nuclear Physics B, 2016.
- Named one of most valued reviewers, Physics Letters B, 2017.