Aniket Basu

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CURRENT POSITION
Assistant Professor
Department of Physics
Vidyasagar College, Kolkata — March 2015–present

COURSES TAUGHT
Mathematical Methods, Statistical Mechanics, Quantum Mechanics, Computer Programming in C, Computer Programming in Python

INDUSTRY EXPERIENCE

- Analyst — Global Risk, Investments and Treasury Technology
  Bank of America, Hyderabad — May 2009–June 2010

- First Year Analyst — Total Return Swaps Trading
  Bank of America, Mumbai — July 2008–April 2009
  Nature of work: Training for a trading job, mainly involving maintenance of code in C# and Java that simulated a model employed by the bank to apprehend credit risk, and picking up the necessary mathematics and software skills in that particular line of business.

EDUCATION

Ph.D. in Theoretical High Energy Physics (ongoing) — 2015–present
University of Calcutta
Nature of work: Evaluation of Feynman diagrams, building up to evaluation of beta functions for non-Abelian gauge theories. We hope to achieve some simplifications in calculations in quantum chromodynamics.

M.Phil. in Theoretical Physics — 2002–2008
Tata Institute of Fundamental Research, Mumbai
Nature of work: Black hole microstate counting using string theoretic approaches

Graduate Student, Department of Physics — 1999–2001
Cornell University, Ithaca, NY — GPA 3.2 out of 4
Passed qualifying exams without further requirements
Subsequently transferred to TIFR, Mumbai
Nature of work:

- Graduate Teaching Assistant for four semesters
- Graduate Research Assistant, Muon Calibration Group, Wilson Synchrotron Laboratory

5-year Integrated M.Sc. in Physics — 1994–99
Indian Institute of Technology, Kharagpur Specialization: Nuclear & Elementary Particle Physics
Thesis Advisors: (the late) Prof. G. P. Sastry and (the late) Prof. R. S. Saraswat
Thesis title: Computer Simulations of the Tippe Top Paradox in Relativity
code written using C, later published as *Tippe Top Paradox in Relativity*, European Journal of

Physics **23**, 295 (2002) with R.S. Saraswat, G. P. Sastry, Kedar Khare, and Sougato Bose
CGPA 8.87 out of 10 over 5 years

Publications

Preprints:

1. Preprint: *Tachyon Perturbation on Two dimensional Black Hole*, [arXiv:1308.2734 [hep-th]], with Parthasarathi Majumdar

Papers published in refereed journals:

1. *Gauge Invariant Matter Field Actions from an Iterative Nöther Coupling*, [arXiv:1711.05608], Phys. Rev. D **98**, 105018 (2018), with Parthasarathi Majumdar and Indrajit Mitra
2. *Dual giant gravitons in $AdS_m \times Y^n$ (Sasaki-Einstein)*, Journal of High Energy Physics JHEP **0707**, 014 (2007) [arXiv:hep-th/0608093] with Gautam Mandal.
3. *Tippe Top Paradox in Relativity*, European Journal of Physics **23**, 295 (2002) with R.S. Saraswat, G. P. Sastry, Kedar Khare, and Sougato Bose

Conference Proceedings

- *Deconstructing a non-Abelian gauge theory*, at **Symmetry 2021 - The 3rd International Conference on Symmetry**, session *Physics and Symmetry*, August 7, 2021, with Parthasarathi Majumdar, Indrajit Mitra and Suman Ghosh.

Professional Activities

- Reviewer for *Journal of Modern Optics* (Taylor and Francis Group, UK)
- Reviewer for *Journal of Physics Communications* (Institute of Physics Publishing, UK)
- Student reviewer for prepublication version of *Exploring Black Holes* by Edwin F. Taylor and John Archibald Wheeler

Membership of Professional Societies

Life Member of the Indian Association of Physics Teachers.

Outreach Activities

- Popular science article: *From Aristotle to Newton: The Principle of Inertia*, Sayam, **3**, 1, 43-46 (2025) DOI: https://doi.org/10.63419/sayam.v3i1.104
- Demonstration of a *cloud chamber* in the Science Exhibition organized by Vidyasagar College in its 150th year.

Computer Skills

- *Operating Systems:* Windows, Linux
- Programming Languages Known: C (have taught this for five years), python (have taught this for ten semesters since 2018).

Awards, Achievements and Scholarships

- Ranked **5** in West Bengal College Service Commission 2013–4
- Kanwal Rekhi Scholarship at TIFR from 2002 to 2006
- Senior Research Fellowship at TIFR from 2004 to 2008
- Junior Research Fellowship at TIFR from 2002 to 2004
- Ranked **1** in TIFR Graduate School Admission Test in Physics 2002
- Ranked **14** in GATE 2002 (Physics)—percentile score **99.29**
- Ranked **52** in JEST 2002 (Physics)—percentile score **97.6026**
- Qualified for JRF through CSIR-NET, December 2001; was shortlisted for the final interview for the S. P. Mukherjee Fellowship
- *J.C. Ghosh Award* in my final year of M.Sc. at IIT Kharagpur, 1998–9 for ranking 1st over four years of study

- *Encouragement Award* at the *Jagadis Bose National Science Talent Search Contest* 1995
- Ranked **1383** in IIT-JEE 1994
- Ranked **190** in WBJEE 1994
- Ranked in the **top 1 per cent** of 21000+ examinees in the National Standard Examination in Physics, 1994, conducted by the Indian Association Physics Teachers
- Ranked **6** in a Talent Search Test of the Association for Improvement of Mathematics Teaching 1992

HOBBIES

- Chess
- Chess programming

REFERENCES

Available on request, mainly from various scientific institutions in India.