

# Curriculum Vitae

## Personal Information

**Name:** Somajit Dey

**Age:** 29

**Gender:** Male

**Nationality:** Indian

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**Homepage:** <https://somajitdey.github.io>

**Others:** [ResearchGate](#) ; [ORCID](#) ; [GitHub](#)

## Profile

Awaiting PhD degree in Theoretical Physics after submitting his thesis for evaluation to University of Calcutta, India.

Actively develops, maintains and contributes to open-source software.

## Objective

Seeking a postdoctoral position in computational, statistical physics, or any interdisciplinary field such as physical, quantitative biology where early career physicists might be able to contribute.

## Attitude

Quick to learn and adapt. Independent, self-taught and self-motivated. Values efficiency, originality and minimalism. Willing to work in multicultural, international teams or communities.

## Experience

- 5 years of successful (in terms of publication in esteemed peer-reviewed journals) research in highly efficient modelling and simulation of complex systems with applications in academia, medicine, industry and education.
- Successful, independent (single-authored) research in topics such as special relativity and computational methodology.
- Oral presentation in international, national and state-level seminars and symposia.
- Conceived of, developed and actively maintaining many well-accepted free and open-source projects spanning a wide range.
- Contributed to popular open-source projects maintained by others.
- Taught Physics to final year high school students for 3 years.

## **Skills**

- Coarse-grained modelling
- Molecular dynamics simulation
- Modern Fortran (object oriented, parallel and modular)
- OpenMP
- OpenMPI (working knowledge)
- Bash scripting
- C
- C++ (working knowledge)
- Python (working knowledge)
- Go (Learning)
- MS Word
- MS PowerPoint
- Inkscape
- GNU Plot

## **Education & Qualifications**

- 2016-present: Ph.D. student in Theoretical Physics, University of Calcutta, India
- 2017: Bangalore School on Statistical Physics -VIII, International Centre for Theoretical Sciences, Bengaluru, India
- 2016: PhD coursework, University of Calcutta, India
- 2013-2015: M.Sc. in Physics, University of Calcutta, India. [Advanced Elective: **Non-Linear Dynamics**]
- 2010-2013: B.Sc. in Physics (Hons.), Mathematics and Statistics, Ramakrishna Mission Residential College (Autonomous), Narendrapur, WB, India
- 2010: Higher Secondary, Ballygunge Govt. High School, Kolkata, India
- 2008: Secondary, Ballygunge Govt. High School, Kolkata, India

## **Awards & Achievements**

- Multiple research papers published in international, renowned peer-reviewed journals.
- Project [IPNS-Link](#) won a 5000\$ [Next Step Microgrant](#) from Protocol Labs.
- Project [ipfs-chat](#) accepted in the official [list](#) of awesome IPFS apps.
- Project [redis-client](#) accepted in the official [list](#) maintained by Redis Ltd.
- CSIR (NET) Senior Research Fellow, 2017-2020
- CSIR (NET) Junior Research Fellow, 2015-2017
- Selected for INSPIRE Fellowship during Ph.D. (2015)
- 27th Rank obtained in JRF (NET)-CSIR, December, 2014 (includes eligibility for lectureship).
- 86th Rank (98.14 Percentile) obtained in JEST for PhD in Physics, 2015
- 39th Rank (98.77 Percentile) obtained in JEST for Integrated PhD in Physics, 2013
- INSPIRE Scholarship from 2010-2015
- 226th Rank (97.61 Percentile) obtained in NEST, 2010

**Note:** All exams stated above are prestigious national level exams screening for higher studies (NEST, JEST) / fellowships (CSIR-NET) / eligibility for lectureship (CSIR-NET).

## **Research publications**

- S. Dey and J. Saha, ‘Solvent-Free, Molecular-Level Modeling of Self-Assembling Amphiphiles in Water’. *Phys. Rev. E* 2017, 95 (2), 023315. URL: <https://doi.org/10.1103/PhysRevE.95.023315>

- S. Dey, 'Time isotropy, Lorentz transformation and inertial frames'. *Studies in Hist. Phil. Mod. Physics* 2018, 63, 123-127. URL: <https://doi.org/10.1016/j.shpsb.2018.01.003>
- S. Dey, 'Time-Reversible, Symplectic, Angular Velocity Based Integrator for Rigid Linear Molecules'. 2018, *arXiv:1811.06450*. URL: <https://arxiv.org/abs/1811.06450>
- S. Dey and J. Saha, 'Minimal Coarse-Grained Modeling toward Implicit Solvent Simulation of Generic Bolaamphiphiles'. *J. Phys. Chem. B* 2020, 124 (14), 2938–2949. URL: <https://doi.org/10.1021/acs.jpcb.0c00734>
- S. Dey, 'Minimal Modification to Nose-Hoover Barostat Enables Correct NPT Sampling'. 2020, *arXiv:2007.01838*. URL: <https://arxiv.org/abs/2007.01838>
- S. Dey and J. Saha, 'SIMPLISTIC: A Novel Pairwise Potential for Implicit Solvent Lipid Simulations with Single-site Models'. *JCIS Open* 2021, 1, 100004. URL: <https://doi.org/10.1016/j.jciso.2021.100004>

## **Free & Open-Source Software (FOSS) Projects**

Complete list available at [GitHub profile](#). A few sample projects:

- [IPNS-Link](#) : Hassle and cost-free, yet secure, self-hosting for everybody. Additional benefits – anonymity and censorship-resistance, efficient live streaming etc. This project [won](#) a 5000\$ [Next Step Microgrant](#) from Protocol Labs.
- [ipfs-chat](#) : Terminal-based, secure chatrooms using IPFS. Works over both LAN and internet (includes NAT traversal). Supports private-messaging and file/directory sharing. Server/broker-less, peer-to-peer, decentralized. This project is also included in the lists of [Awesome IPFS](#) and [Awesome Decentralized](#).
- [tunnel](#) : Peer-to-peer, secure, TCP/UDP port forwarding using HTTP(s) relay for NAT/firewall traversal.
- [redis-client](#) : Bash scripting library + CLI + Connection-pool for [Redis](#). This is included in the [official list of clients](#) maintained by Redis Ltd.
- [tocgen](#) : A nice little bash-script for generating likeable Table of Contents in markdown documents.
- [GiBBERISH](#) : Git and Bash Based Encrypted Remote Interactive Shell (GiBBERISH). For when you cannot use SSH.
- [ProgRep](#) : Progress bar, ETA etc. for simulations.
- [SerTAin](#) : Simple Bash library for building a basic HTTP server.
- <https://predictalink.herokuapp.com> : Map URLs to custom names. Built using Bash.
- [2FA-toolkit](#) : Shell-script (Bash) with functions relevant to two-factor-authentication. Compatible with Google Authenticator.
- [f\\_](#) : A KISS library for extending standard Fortran in a portable way. Very much a work in progress.
- [M\\_system](#) : Fortran Library (contributed, not maintainer).
- [Pantry](#) : Online key-value store (contributed, not maintainer).

## **References**

- Professor Jayashree Saha, Department of Physics, University of Calcutta, [jsphy@caluniv.ac.in](mailto:jsphy@caluniv.ac.in)
- Professor Alokmay Datta, Emeritus Prof. (Raja Ramanna Fellow), Central Glass and Ceramics Research Institute, [alokmaydatta@gmail.com](mailto:alokmaydatta@gmail.com)
- Professor Debnarayan Jana, Department of Physics, University of Calcutta, [djphy@caluniv.ac.in](mailto:djphy@caluniv.ac.in)