ABOUT ME

My passion to look for variety, innovation in everything has encouraged me to think out-of-the-box. I have always been astonished by LOGICAL challenges, whether it be in math, physics, strategy games, programming or even psychology. I believe that through my understanding of the world and the science in it I can make a difference. I tend to get along very well with collaboration and consider myself to be an organized and cheerful person.

SPECIALIZATIONS –

Physics:
- Plasm Physics
- Magnetohydrodynamics
- Unconventional Superconductivity

Mathematical Physics:
- Symplectic Geometric (Hamiltonian Dynamics)
- Geometric Quantization
- Stochastic Processes

CONTACT

PHONE:
+91 9326 468 549

EMAIL:
k.jovi@cbs.ac.in

OTHER HANDLES:
GitHub
Instagram

HOBBIES

Footballer
Film Critique
Graphic Designing
Amateur Intraday Trader

JOVI K

Int. MSc-Physics (5 year)

PUBLICATIONS

Investigation on the Nature of ECDI/MTSI with 2D PIC-MCC Simulations
Present (Co-authored, Unpublished Draft Stage for AIP)
Plasma Physics – Theoretical and computational study of Hall Thruster

EDUCATION

University of Mumbai-Department of Atomic Energy-Centre for Excellence in Basic Science (UM-DAE-CEBS), Maharashtra, INDIA
2018 – 2023 (5-year Int. MSc.)
Merit Based Govt. of INDIA Institution (NEST Score based)
Cumulative GPA – **8.59**

Jawahar Navodaya Vidyalaya, Ernakulam, Kerala, INDIA
2011 – 2017 (6^{th} to 12^{th} Standard)
Merit Based Govt. of INDIA Boarding School (CBSE)
Passed 12^{th} with distinction of **94.8 %**

EXPOSURE*

In-Semester Project – Modelling micro-instabilities in Hall Thrusters under Dr. Bhooshan Paradkar, CEBS, Mumbai
Jan '23 – Jun '23
- In-semester reading project (includes report submission and presentation) done as part of MSc Curriculum credits.
- Numerical Solutions for the dispersion relations, in continuation of the work previously done (Feb-Jun '22). Analyzing micro instabilities mainly MTSI and ECDI and effect of collisions.

Thesis Project – Designing twisted BLG under Dr. Romain Danneau, *Karlsruher Institut für Technologie*, Germany
July – Dec '22
- Involving optimizing the dry stacking procedure and designing a standard method for the fabrication of twisted Bilayer Graphene based nanostructure.
- Requires a unique combination of applied physics and creative skills, as well as a good understanding of the underlying physical principles.

In-Semester Project – Plasma Instabilities in Hall Thrusters under Dr. Bhooshan Paradkar, CEBS, Mumbai
Feb – Jun '22
- In-semester reading project (includes report submission and presentation) done as part of MSc Curriculum credits.
- A vigorous study on the Hall Thruster Problem followed by an Analytical Instability and Turbulence analysis involving Asymptotic and BIBO Analysis.

In-Semester Reading project – Symplectic Geometry under Dr. Ameeya Bhagwat, CEBS, Mumbai
Aug – Dec '21
- In-semester reading project (includes report submission and presentation) done as part of MSc Curriculum credits.
- Topics covered include Differential Topology, Symplectic Geometry and its association with Hamiltonian Mechanics, Fresnel Optics and Introduction to Geometric Quantization, Lagrangian Subspaces, Lie Algebra, Kahler Manifolds and Cohomology Theory.

NIUS 2-year Project – Unconventional Superconductivity under Prof. Rajdeep Sensarma, TIFR, INDIA
Jun '19 – Dec '20
- Selected students from the NIUS camp are given the choice of continuing with NIUS Program under an accomplished mentor.

* All reports and presentations are available here.

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JOVI K

Int. MSc-Physics (5 year)

EXPOSURE*

- An amazing learning project that focused on educating through literature reading. Some of the topics covered are Quantum Many Body Theory (Second Quantization), Fermi Gas Theory, Bogoliubov theory (weakly interacting Bose Gas), Cooper Problem and BCS Theory, Ginzburg–Landau theory and Second Order Phase Transitions and Generalized BCS for Unconventional Superconductors.

NIUS Summer Camp
10 - 22 June, 2019
- Selected students from around the country are invited to learn under some of the best researchers as well as have hands-on experience on some of the state-of-art instruments and experimental techniques at the HBNI Campus. A brilliant opportunity to interact with talented young minds.
- Most of the current hotspots in - Astrophysics, Theoretical, Experimental Physics and Physical Education & Research (PER), where covered.

Vijyoshi/KVPY Summer Camp
6–9 Dec, 2018 (3 days)
- Summer camp for KVPY scholars.
- Exposure camp for 1st year science students. Introductory research lectures on Physics, Math, Chemistry and Biology.

ACHIEVEMENTS AND SKILLS

- Paid Intern at Karlsruher Institut für Technologie, Germany
- Developed GUI based Database using building python libraries
- DAE-DISHA Scholar with Stipend (2018 - Present)
- NIUS Scholar (2019-20)
- NGPE Rank Holder (2020)
- NEST (2018) All India Rank 72 (General Category)
- KVPY Scholar (2015, 2016)
- Multiple NSO Rank Holder (including 2014, 2015)
- Wing/House Captain (School Level) (2016-17)

- Proficient in Python, Fortran90/95, R, OriginPro
- Good with Cpp, Machine Learning and Artificial Intelligence, Statistical Techniques, Data Analysis, GNU-plot
- Beginner in Julia, Quantum Computing, Cybersecurity

CERTIFIED COURSES

- Introduction to General Theory of Relativity, HSE University (Coursera Digital Certificate)
- Statistical Thermodynamics (Specialization – set of 5 courses), University of Colorado Boulder (Coursera Digital Certificate)
- Stochastic Processes, HSE University (Coursera Digital Certificate)
- Advanced Trading Algorithms, Indian School of Business (Coursera Digital Certificate)

UNCERTIFIED COURSES

- Machine Learning, Stanford University (11 Week Course)
- Lectures on the Geometric Anatomy of Theoretical Physics, Dr. Frederic P. Schuller
- Caltech's ML course, Prof. Yaser Abu-Mostafa
- Mathematical Physics, Prof. Carl M. Bender

* All reports and presentations are available here.