



SAYANDIP DOLUI

SOPHOMORE Physics Researcher

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EDUCATION

July 2023 – present

UNIVERSITY OF HYDERABAD

Master of Science (5yr. integrated) in Physics

Gachibowli, Hyderabad, India

- Currently advancing through the fourth semester, driven by a deep commitment to exploring the **Frontiers of quantum materials, devices, and interdisciplinary scientific research**.
- The curriculum has provided comprehensive training across diverse subjects, including **Classical Mechanics, Electrodynamics, Thermodynamics & Statistical Physics, Electronics(Analog), Computational Physics**, and **introductory courses in Material Science and Nanotechnology**, fostering a holistic and multidisciplinary academic foundation.

July 2021 – May 2023

CHATRA NANDALAL INSTITUTION

Higher Secondary Education

Serampore, West Bengal, India

- Successfully completed Higher Secondary Education under the prestigious **West Bengal Council of Higher Secondary Education (WBCHSE)** in 2023.
- Specialized in the core sciences: **Physics, Mathematics, Chemistry**, and **Biological Sciences**, building a robust foundation for future explorations.

January 2020 – May 2021

CHATRA NANDALAL INSTITUTION

Secondary Education

Serampore, West Bengal, India

- Completed Madhyamik Pariksha (Secondary Education) with flying colors under the esteemed **West Bengal Board of Secondary Education (WBBSE)** in 2021, nurturing a strong academic base.
- Focused study on core subjects like **Mathematics, Physical Sciences, Life Sciences, History, Geography, Bengali**, and **English**, each contributing to a well-rounded and deeply rooted academic foundation, fostering both analytical and critical thinking skills.

RESEARCH EXPERIENCE

May 2024 – Feb 2025

TIFR Centre for Interdisciplinary Sciences (TCIS), Hyderabad

Summer Research Internship

Gachibowli, Hyderabad, India

- focused on making **Josephson Junctions (JJs)**, exploring their role in superconductivity and potential applications in quantum computing and nanotechnology under the supervision of **Prof. Dr. Karthik V. Raman**
- Gained hands-on skills in the **fabrication, characterization, and study of behavior of these junctions**, with particular emphasis on their quantum properties and the mechanisms driving their behavior at **low temperatures in Cryostat and Dilution Refrigerator**.
- SKILLS: **Photolithography, e-beam Lithography(beginner proficiency), Molecular Beam Epitaxy(e-beam evaporation & angular deposition), DC Sputtering, FESEM, XRD(beginner proficiency)**

December 2023 – January 2024

School of Physics, University of Hyderabad

Winter Research Internship

Gachibowli, Hyderabad, India

- Engaged in research on **"Physical Methods to Study the Viscoelastic Properties of the Liquids using innovative Single Particle Tracking techniques"**, under the inspiring mentorship of **Prof. Sharath Ananthamurthy** in the Biophysics Lab.
- Developed a rich, diverse skill set and honed a holistic approach towards scientific inquiry, embracing a multidisciplinary perspective that now deeply enriches my academic journey.
- **SKILLS: Optical trap, Single Particle Tracking**

May 2022

Indian Institute of Science Education and Research (IISER) Bhopal

Summer Outreach Camp

Bhopal, Madhya Pradesh, India

- Gained invaluable **hands-on laboratory experience**, immersing myself in the exhilarating world of ongoing scientific research.
- Experienced the **beauty of interdisciplinary sciences** firsthand and cherished opportunities to interact with **eminent scientists and explore cutting-edge laboratories**.

ACADEMIC ENGAGEMENTS: Conferences, Workshops, and Meetings

February 28, 2025

Workshop on Quantum Computing Foundations and Applications

School of Computer and Information Sciences (SCIS), University of Hyderabad

Gachibowli, Hyderabad, India

- Gained a foundational understanding of quantum computing principles, including the transition from classical bits to quantum qubits, and explored real-world applications across machine learning, cryptography, and security.
- Developed insights into the integration of quantum technologies with classical systems and understood the societal impact of quantum innovations through interactive panel discussions.
- Explored emerging fields like Quantum Cryptography, Quantum Security, and Quantum Blockchains, recognizing the critical need for new cryptographic systems in the era of quantum computing.

September 27-28, 2024

Frontiers in Physics (FIP - 2024)

School of Physics, University of Hyderabad

Gachibowli, Hyderabad, India

- Gained insights into recent advancements in quantum materials, condensed matter physics, astrophysics, and interdisciplinary research.
- Developed an understanding of emerging experimental and computational techniques shaping the future of physical sciences.
- Engaged with leading researchers, enhancing academic exposure and fostering a broader scientific perspective

July 29 - August 02, 2024

Online Short Term Course (e-STC) on "Advanced Materials Testing and Characterization"

Department of Materials Science and Engineering, National Institute of Technology (NIT) Hamirpur.

Hamirpur, Himachal Pradesh, India

- Gained foundational and advanced knowledge of materials testing and characterization techniques, with applications across automotive, aerospace, biomedical, and electronics industries.
- Explored interdisciplinary approaches and developed an understanding of emerging challenges in advanced materials science and engineering.

July 01-03, 2024

National Workshop on Recent Advancements in Semiconductor Devices (NWRASD) 2024

Department of Electronics and Communication Engineering, PDPM Indian Institute of Information Technology, Design and Manufacturing (IIITDM), Jabalpur
Jabalpur, Madhya Pradesh, India

- Gained exposure to the latest developments in semiconductor device technology, fabrication techniques, and emerging trends in electronics and material engineering.
- Enhanced understanding of advanced semiconductor devices' practical and industrial applications across various sectors.

March 15-17, 2024

46th Indian Biophysical Society Meeting

Tata Institute of Fundamental Research, Hyderabad and University of Hyderabad (jointly organized)
Hyderabad, India

- Engaged with leading national and international researchers through plenary sessions and invited talks covering topics such as protein folding, membrane biophysics, drug discovery, and molecular simulations.
- Participated in poster sessions and flash talks, gaining insights into cutting-edge biophysical research and emerging interdisciplinary approaches.

SKILLS

Research Skills

Vacuum techniques, Lithography, Deposition techniques, Thin Film Deposition, Microscopy techniques, Cryogenics (Beginner Proficiency), Sputtering, Arduino, Molecular Beam Epitaxy (MBE).

Softwares

Linux Mint, Ubuntu, Windows

Programming Languages

Python (including data science), MATLAB (beginner proficiency), HTML, CSS (basic knowledge), Scaps 1D, Quantum Espresso, Cadence
• till *Front-end web development* (Python).

Scientific Computing

Familiar with basic computational techniques and data analysis using Python and MATLAB, Gwyddion, ImageJ, and Fiji software.

Instrumentation

Arduino, ExpEYES, LabVIEW Programming (Beginner Proficiency)
• Developed an **Automation Setup**

Simulation Tools

Initial exposure to computational modeling and simulations (Kalzium, PyMOL)

Technical Skills

Foundations in experimental data analysis, basic laboratory instrumentation

ACADEMIC HONORS & AWARDS

2017 - 2023

National Means-Cum-Merit Scholarship (NMMS)

Ministry of Education (MoE), Department of School Education Literacy (DoSEL), Government of India.
New Delhi, India

- Awarded through a nationwide competitive examination conducted by the Ministry of Education, Government of India, recognizing consistent academic excellence

2018 - 2021

National Cadet Corps (NCC) Scholarship

National Cadet Corps Directorate, Ministry of Defence, Government of India.
New Delhi, India

- Awarded by the National Cadet Corps Directorate, Ministry of Defence, Government of India, recognizing excellence in discipline, leadership, and service during NCC training, following the successful completion of the "A" Certificate examination.

2021 - 2023 **Swami Vivekananda Merit-Cum-Means (SVMCM) Scholarship**
Higher Education Department, Government of West Bengal.
Bikash Bhavan, Salt Lake, Kolkata, India

- Awarded by the Government of West Bengal, administered through the Higher Education Department, based on outstanding academic performance in the Madhyamik Pariksha (Secondary Examination) and continued merit during Higher Secondary studies.
- Not availed currently due to pursuing higher education outside West Bengal.

2021 - 2023 **OASIS Scholarship**
Higher Education Department, Government of West Bengal.
Kolkata, West Bengal, India

- Conferred by the Backward Classes Welfare Department, Government of West Bengal, acknowledging consistent academic achievement and commitment to education among students based on consistent academic achievement following the Madhyamik Examination.
- Not availed currently due to pursuing higher education outside West Bengal.

2023 - Present **University of Hyderabad Digital Access Grant (DAG) Fellowship**
University of Hyderabad
Gachibowli, Hyderabad, India

- Awarded by the University of Hyderabad under the University Grants Commission (UGC) initiative, selected as one of 200 students from a competitive pool of applicants, supporting digital accessibility and facilitating continuous academic and research pursuits.

CERTIFICATION

2015 - 2016 **DOWS INFOTECH SOCIETY**
Diploma in Computer Application
Serampore, West Bengal, India

July 2023 **NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION TECHNOLOGY(NIELIT), KOLKATA**
Online Certificate Course in Python Programming
Jadavpur Campus, Kolkata, West Bengal, India

LEADERSHIP EXPERIENCE

October 2024 **VIGYANOTSAV'24**
Junior Science Club (JSC), CIS, University of Hyderabad (UoH).
Gachibowli, Hyderabad, India

- A science outreach event organized by JSC, UoH, for school students in Hyderabad.
- Contributed to successfully organizing the event and arranged all the lab visits and talks of this event

VOLUNTEER EXPERIENCE

September 2024 - present **ZENITH ASTRONOMY CLUB(ZAC)**
School of Physics (SoP), University of Hyderabad (UoH).
Gachibowli, Hyderabad, India

- Actively engaged in organizing astronomy outreach events, observation nights, and workshops, promoting scientific curiosity among students and the community.
- Participated in astrophotography activities, capturing celestial events and deep-sky objects, while developing technical skills in observational astronomy and imaging techniques.
- Contributed to event planning, coordination, and public engagement initiatives, fostering enthusiasm for space science and astronomy.

September 2023 - present

SHAPE YOUR THOUGHT(SYC) CLUB

College for Integrated Studies (CIS), University of Hyderabad (UoH).

Gachibowli, Hyderabad, India

- Actively participated as a club member, contributing to the planning, coordination, and successful execution of academic and cultural events.

September 2023 - present

JUNIOR SCIENCE CLUB(JSC)

College for Integrated Studies (CIS), University of Hyderabad (UoH).

Gachibowli, Hyderabad, India

- Assisted in organizing seminars, workshops, and outreach programs, fostering a vibrant campus environment and promoting student engagement.
- Developed teamwork, leadership, and event management skills through continuous involvement in club activities.

ADDITIONAL INFORMATION

Languages Bengali (Native), Hindi, English.

Interests Chess, Cricket, Yoga & Meditation.