

# Mahtab Alam

Chaibasa, Jharkhand-833201 — E-mail — +91 7004699365 — LinkedIn — India

## RESEARCH INTEREST

---

I am interested in creating and testing **computational models** and studying their properties. Alongside theoretical aspects of designing, these models' experimental aspects also intrigue me like the **growth of 2-D materials** like  $MoS_2$  or in general TMDCs' using various techniques, their characterization using different techniques like **Atomic Force Microscopy (AFM)**, **Scanning Electron Microscopy (SEM)**, **Raman Spectroscopy** etc. Currently, I am working on **Disorder in Honeycomb lattice systems**. I am also interested in **VLSI** design to make more efficient devices like low-noise amplifiers.

## EDUCATION

---

<b>Masters in Physics</b> Birla Institute of Technology, Mesra, 835215, India 9.08 CGPA, (On a 10-point scale)	<b>2022 - 2024</b>
--	--------------------

<b>Bachelors in Physics</b> St. Xavier's College, Ranchi, 834002, India 8.51 CGPA (On a 10-point scale)	<b>2019 - 2022</b>
---	--------------------

<b>Intermediate</b> St. Xavier's English School and Junior College, Chaibasa, 833201, India 87.25 %.	<b>2017 - 2019</b>
--	--------------------

## COMPETITIVE EXAMS

---

<b>IIT-JAM (Physics)</b> Score: 39.33 Rank: 1303	<b>Qualified in 2022</b>
--	--------------------------

<b>GATE (Physics)</b> Score: 36.67 Rank: 1806	<b>Qualified in 2024</b>
---	--------------------------

## EXPERIENCE

---

### Disorder and Strain Effects in Honeycomb Lattice Systems

Making a computational model for 1-D chains and dimerized 1-D chains (SSH), 2-D structures like square, rectangular, and specifically **graphene** like systems and study the effects of different types of disorders in them.

### Designing CMOS-based Devices in Cadence

Designing simple CMOS-based devices in cadence and T-cad, like simple inverters, NAND, and NOR gates, and studying their response.

### Summer Internship at BIT, Mesra

**May 2024 - July 2024**

Modeling DLA, Eden, and DLA+Eden-like cluster growth models and comparison with available literature.

## WORKSHOPS

---

**One Day National Workshop on Data Analytics for Efficient Decision Making**

**7<sup>th</sup> January**

Birla Institute of Technology, Mesra, India

**Workshop on Advances in Photonics and Spectroscopy**

**March**

Birla Institute of Technology, Mesra, India

**Short Term Training Program on Microelectronics and VLSI Design(MVD)- 2024**

**April**

Birla Institute of Technology, Mesra, India

## SKILLS

---

**Programming Languages:** Python, MATLAB, L<sup>A</sup>T<sub>E</sub>X, C, JAVA.

**Softwares:** Origin, Excel, LabView, Cadence, COMSOL.

**Language Fluency:** English (C1 or above), Hindi, Japanese(N5)

**Sports:** Captain of the Department of Physics Volleyball team(St. Xavier's College), Badminton, Cricket

**Clubs:** President of Science Club in School