# Meyhar Dudeja

dudejame@msu.edu — Website— LinkedIn

## EDUCATION

**Michigan State University** **May 2026**
*College of Natural Science, Honors College* *East Lansing, Michigan*
GPA 3.925

## GRANTS & SCHOLARSHIPS

- GSI Helmholtz Centre for Heavy Ion Research Stipend and Travel July 2025 – September 2025
- Michigan State University Honors College Travel Grant for Research in Germany May 2025
- Lyman Briggs College For Project Diophantine Triple Spring 2023
- Michigan State University International Student Tuition Scholarship August 2022 - Present

## CONFERENCES & WORKSHOPS

- **GSI Summer Student Presentation 2025** - GSI Helmholtz Centre for Heavy Ion Research
  - Presented "Simulation Studies on UniCell Setup"
- **Isotopes in Motion Workshop 2024** - FRIB - Michigan State University
  - Volunteered in this workshop about communicating FRIB research and nuclear physics to high school students.
- **MCAW 2023** - Midwest Cold Atoms Workshop - University of Chicago
  - Presented "Progress towards Single Atom Microscope"
- **Mid-SURE 2023** - Mid-Michigan Symposium for Undergraduate Research Experiences - Michigan State University
  - Presented EDM3 as "Using Radioactive Molecules to Study the Origin Of Visible Universe"
- **UURAF 2023** - University Undergraduate Research Arts and Forum - Michigan State University
  - Presented "Some Remarks on Diophantine Triples"

## ACADEMIC EXPERIENCE

**Summer Research Student** **July 2025 – September 2025**
*GSI Helmholtz Centre for Heavy Ion Research* *Darmstadt, Germany*

- **Advisor**: Dr. Jochen C. Ballof, Staff Scientist, Superheavy Element Chemistry group, GSI
- **Project**: Simulation studies on the UniCell Setup
  - Ran SIMION simulation studies on the UniCell setup, which is a novel gas stopping cell to reduce the extraction time of superheavy elements to study chemical properties.
  - The UniCell ion funnel had shorted electrode plates, and the simulations done were to find an alternative way to fix these shorts without mechanical repair due to fragility of the funnel.
  - Successfully developed a method to have high 92% efficiency without requiring mechanical repair to the funnel.

**Researcher** **October 2024 – February 2025**
*Karmanos Cancer Center (KCC), Wayne State University* *Detroit, Michigan*

- **Advisor**: Dr. Ramesh Boggula, Senior Medical Physicist, KCC & Assistant Professor, Department of Oncology, Wayne State University.
- **Project**: Make/Acquire a Compton Camera to test its application in Medical Physics
  - Researched on compton camera to image gamma rays from a patient who has been administered a nuclear medicine like Pluvicto that contains Lu-177. This led to KCC acquiring a compton camera from M3D imaging.

**Student Research Assistant I** **October 2022 – December 2024**
*Facility for Rare Isotope Beams (FRIB), Michigan State University* *East Lansing, Michigan*

- **Spinlab Group PI**: Dr. Jaideep T Singh, Associate Professor of Physics, FRIB, Michigan State University
- **EDM3** - Electric Dipole Measurements using Molecules within a Matrix
  - Assembled ion transport instrument with the postdoc (Dr. Jochen C. Ballof) and grad students on the group; used vacuum chambers and ion funnels to construct the instrument; successful vacuum creation at desired pressures, learned the skills of vacuum operation.
  - Built electrical connection breakout boxes using solder, triax cables and multipin connectors, resulting in reduced noise in measuring pico-amp currents.
- **SAM** – Single Atom Microscope
  - Built the Blackout Enclosure and did other modifications to the existing setup mechanical design skills; used 80-20 aluminium profiles and modified them by either cutting or filing them, leading to a reduction of the optical background of photon counts.
  - Did sharpness of image, theoretical calculations using Zemax OpticStudio and did analysis using python, made graphs using matplotlib.

**Researcher** **September 2022 - Present**
*Lyman Briggs College, Michigan State University* *East Lansing, Michigan*

- **Project Diophantine Triple** - Advised by Dr. Aklilu Zeleke, Ph.D. Mathematics, Professor of Mathematics and Statistics, Michigan State University
- **Official Title**: Asymptotic Behavior of Numerical Sequences and Polynomials Generated by Recurrence Relations.
  - Number theory research being done under the guidance of Prof. Zeleke.
  - Created a Python program that generates arrays and then filters out the ones that fits the conditions of being a Diophantine triple; found multiple recurrence relations and now in phase of publishing a paper for results written in Latex.

**Researcher** **August 2020 – August 2021**
*University of California, Santa Barbara, CA (remote)* *Delhi, India*

- **Project BabyPIC (Particle in cell code)**
  - Project that simulates particles in form of Finite Phase Fluid Elements (FPFEs) with defined charges in influence of electric and magnetic fields using Leapfrog Integration.
  - Worked on this project theoretically, tested the simulations, and analyzed the results.

---

## COLLEGIATE EXPERIENCE

**Service Center Representative** **October 2024 – Present**
*Michigan State University* *East Lansing, Michigan*

- This job is about communicating with residents of dormitories and helping them with packages, keys, access cards etc. Also, assist any visitors, like parents etc.
- Organizational skills are extremely important in this job as you are managing a desk that services keys, packages and mail.

---

## ACTIVITIES & CERTIFICATIONS

- Dean's List for Academic Excellence (GPA>3.5) Dec 2022, May 2023, Dec 2023, May 2024, Dec 2024, May 2025
- Founder, Core Team Head, VIS Scientia Society Oct 2020 – July 2022
- Won AP Scholar Award July 2021
- Completed Citi Asia Pacific Investment Banking Virtual Reality Intern Experience May 2021
- Completed Goldman Sachs Engineering Virtual Program November 2020
- Completed JPMorgan Chase & Co. Software Engineering Virtual Experience October 2020
- Participated in Harvard Model United Nations, India November 2020
- Completed Trinity College London Graded Examination in Spoken English December 2016

---

## SKILLS

- **Languages**: English, Hindi, Punjabi
- **Programming languages**: Java, Python
- **Frameworks**: Git, NumPy, scikit-learn, seaborn, Pandas
- **Scientific Software**: Altium, SIMION, COMSOL
- **Software**: Inkscape, IntelliJ, VScode