

Curriculum Vitae

Prathamesh Keshao Deshmukh

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(This is a public CV. Personal details such as address and phone number have been omitted for privacy.)

Academic Records

- **PhD Student in Solid-State Physics**
UGC-DAE Consortium for Scientific Research, Mumbai, Maharashtra, India
Supervisor: Dr. Sudip Mukherjee
Date of Joining: May 9, 2022
- **Master of Science in Physics**
Savitribai Phule Pune University, Maharashtra, India
Year: 2021, CGPA: 9.60
- **Bachelor of Science in Physics**
Sant Gadge Baba Amravati University, Maharashtra, India
Year: 2019, Percentage: 72%

Research Interests

- Multiferroic magnetoelectric composites
- Heterostructures / Multi-layer structures
- Scientific programming for lab automation

Publications

- **Deshmukh, P.**, Kashyap, S., Mukherjee, S., Gupta, S., & Mukherjee, S. (2025). "Exploration of near room temperature magnetoelectric coupling in BaFe₁₀Sc₂O₁₉: KNbO₃ composite." *Journal of Physics and Chemistry of Solids*, 196, 112309.
- Mukherjee, S., Kashyap, S., **Deshmukh, P.**, Roy, R., Chatterjee, S., & Mukherjee, S. (2025). "Negative capacitance and magnetodielectric effect in Cu₂O-CuO ceramics." *Ceramics International*, 51(20), 30716-30722.
- **Deshmukh, P.**, Jana, P. K., Mukherjee, S., Kashyap, S., Rayaprol, S., & Mukherjee, S. (2025). "Exploring the role of Cu¹⁺ in quasi-1D Cu_{1-x}Li_xO (x = 0.025)." *Journal of Alloys and Compounds*, 1036, 181833.
- Mukherjee, S., **Deshmukh, P.**, Kashyap, S., and Mukherjee, S. "Negative magnetodielectric response in quasi-1d system: Photo-induced Capacitive effect." (*In Review*).

PhD Research Work

Supervisor: Dr. Sudip Mukherjee

Duration: May 2022 - Present

- Conducted an extensive literature survey on the magnetoelectric properties of multiferroic composites, focusing on strain and magnetic ordering.
- Developed and optimized synthesis methods for high-quality materials, including BaFe₁₀Sc₂O₁₉:KNbO₃ composites, Li-substituted CuO.

- Designed and created custom probes for magnetodielectric, IV resistivity, piezoelectric, and pyroelectric measurements in cryogenic environments (PPMS).
- Utilized neutron diffraction at the Dhruva reactor (BARC, Mumbai) to investigate the structural and magnetic properties of synthesized materials.
- Operated various characterization techniques, including magnetometry (VSM), X-ray diffraction (XRD), UV-Vis and Raman spectroscopy, and AC susceptibility.

Conferences and Workshops

1. Presented a poster on $\text{Li}_x\text{Cu}_{1-x}\text{O}$ at the **66th DAE Solid State Physics Symposium**, Birla Institute of Technology, Mesra, Ranchi (2022).
2. Attended the **XIX School on Neutrons as Probes of Condensed Matter**, organised by UGC-DAE CSR, Mumbai (2022).
3. Participated in the **6th National Workshop on Materials Chemistry**, DAE Convention Centre, Mumbai (2023).
4. Presented a poster on “Flexomagnetodielectric Effect in $\text{CuO}:\text{SiO}_2$ ” at the **67th DAE Solid State Physics Symposium**, GITAM, Visakhapatnam (2023).
5. Attended the **XXth Neutron School (NPCM-2024)**, BARC, Mumbai (2024).
6. Participated in a 7-Day Online Workshop on **DFT Modelling of Materials (Hands-on Training)** (2023).
7. Attended the **13th Asia-Oceania Neutron Scattering Association (AONSA) Neutron School**, BARC, Mumbai (2024).
8. Presented a poster at the **Emerging Trends in Advanced Materials**, CSIR-CGCRI, Kolkata (2025).
9. Attended the **HERCULES EUROPEAN SCHOOL 2025**, Online (2025).

Skills

• Technical Skills:

- Proficient in experimental techniques: dielectric measurement, neutron diffraction, X-ray diffraction, and magnetometry (VSM).
- Skilled in Python for data analysis (NumPy, Pandas, SciPy) and automating experiments by interfacing with lab instruments.
- Developed **PICA (Python Instrument Control & Automation)**, a ‘PyVISA’-based software suite for controlling instruments like Keithley electrometers and Lakeshore temperature controllers.
- Learning computational modelling using COMSOL Multiphysics and DFT.

• Research Skills:

- Strong background in solid-state physics and materials science.
- Expertise in the synthesis and characterisation of multiferroic materials.
- Ability to design and conduct experiments, analyse data, and present findings effectively.

• Soft Skills:

- Excellent communication and presentation skills, demonstrated through multiple conferences.
- Strong teamwork and collaboration abilities, developed in diverse research groups.

Certificates

- **NUCLEAR01x: Understanding Nuclear Energy**, Delft University of Technology (DelftX).
- **FDP/Workshop on DFT Modelling of Materials (Hands-on Training)**, December 5-11, 2023.
- **Master COMSOL Multiphysics Simulation Software**, Udemy, April 14, 2025.

Personal Details

Name	Prathamesh Keshao Deshmukh
Birth Year	1999
Gender	Male
Nationality	Indian
Marital Status	Single
Languages Spoken	Marathi, English, Hindi

Declaration

I hereby declare that the details and information provided above are complete and true to the best of my knowledge.

Place: Mumbai
Date: September 27, 2025

Prathamesh K. Deshmukh