SRIHARI MADHAV KASTUAR

PhD Candidate
Department of Physics
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EDUCATION

Degree	University	Duration of study	CGPA/Percentage
Doctor of Philosophy	Lehigh University, PA, USA	-	-
Master of Science	National Institute of Technology, Calicut, India	2017-2019	9.13
Bachelor of Science	Hansraj College, University of Delhi, India	2013-2016	69.83%

RESEARCH EXPERIENCE

2021 Lehigh University (LU), PA, USA
Advisor: Dr. Chinedu Ekuma

- *Spring 2023:* Engineering intermediate band states in Cu intercalated GeSe/SnS heterobilayers for next-generation optoelectronics.
- *Summer 2022 to present:* Developing a computational framework utilizing machine learning to design intercalated 2D/Organic hybrid materials.
- *Summer 2021 to present:* Designing next-generation lead-free perovskite derived family of two-dimensional (2D) materials.
- *Summer 2021:* Developing a machine learning (ML) model for the elastic and mechanical properties of over 10,000 2D materials and heterostructures.
- *Summer 2021:* Studied the properties of 2D materials in large scale systems using classical Molecular Dynamics simulations. *Principal Investigator: Dr. Edmund Webb, LU*
- *Fall 2020:* Studied the electronic properties of ZnO and CuO using Density Functional Theory (DFT)

2019 National Institute of Technology, Calicut, India
Advisor: Dr. Raghu Chatanathodi

- Studied lithium-decorated black phosphorene for hydrogen storage using DFT.

PUBLICATIONS

- Lalrinkima, **Kastuar, S. M.**, Zadeng, L., Zosiamliana, R., Chettri, B., Singh, Y. T., Zuala, L., ... & Ekuma, C. E. (2023). Giant intrinsic magnetoresistance in spin-filtered tunnel junctions with ferrimagnetic electrode. *Physical Review B*, *107*(15), 155305.

- **Kastuar, S. M.**, & Ekuma, C. E. (2023). Giant electrophotonic response in two-dimensional halide perovskite Cs 3 Bi 2 I 9 by strain engineering. *Physical Review Materials*, *7*(2), 024002.

- **Kastuar, S. M.**, Ekuma, C. E., & Liu, Z. L. (2022). Efficient prediction of temperature-dependent elastic and mechanical properties of 2D materials. *Scientific Reports*, *12*(1), 3776.

- John, D., Nharangatt, B., **Kastuar, S. M.**, & Chatanathodi, R. (2021). Blue phosphorene nanosheets with point defects: Electronic structure and hydrogen storage capability. *Applied Surface Science*, *551*, 149363.

AWARD

Dr. Hyo Sang Lee Fellowship *2020, Lehigh University*
Role: Graduate Fellow
$52,500

SKILLS

- Machine Learning modelling and analysis using Python.
- Software and programming – Vienna Ab-Initio Simulation Package (VASP), Quantum Espresso, Excel, Python, MATLAB, and Linux.

PROFESSIONAL EXPERIENCE

- *Subject Matter Expert and Quality Analyst –*
  Worked as a Subject Matter Expert and Quality Analyst at Evelyn Learning Pvt. Ltd (India), leading a team of 10 and developing advanced physics related content for various schools and online publishers, both Indian and foreign; was awarded for "solving most complex problems" in two consecutive quarters. (May 2019 – August 2020)
- *Teaching experience* – Physics home tutor to high school students (2014-2016)

SELECTED ACTIVITIES

President – Association of Physics, NIT Calicut (2018-2019)

- Lead the fairly new and re-established Physics Association with a core team of 12 members and organized various seminars and workshops in and outside campus.

Event Head – Hansraj College, Delhi University (2016)

- Was the Event Head at the annual fest of the Physics department; conceptualized, organized and managed a 3 days long event with a team of 20 volunteers.

PERSONAL DETAILS

Gender – male
Nationality – Indian
Languages known – English, Hindi