Nikhil Kodali — Curriculum Vitae

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Education

Academic Qualifications

- **Indian Institute of Science** — **Bangalore**
  Ph.D. in Computational and Data Science — *2021 – 2025(expected)*
  CGPA (9.2/10)
- **Indian Institute of Technology, Bombay** — **Mumbai**
  B.Tech Electrical and Electronic Engineering with Honors, Minor in Physics — *2013 – 2017*
  CGPA (8.15/10)

Work Experience

Research Experience

- **Institute for Computational Physics** — **University of Stuttgart**
  HiWi, supervised by Prof. Maria Fyta — *2017 – 2018*
  Performed structural optimization and energy calculations utilizing DFT for NV centers in diamond slabs, investigating their interactions with nucleobases.
- **Nano and Hybrid Materials group** — **École Polytechnique de Montréal**
  Research Intern, supervised by Prof. Oussama Moutanabbir — *25 May 2016 – 15 July 2016*
  Conducted DFT-based structural optimization and energy calculations on Sn/Ge/Si alloys, providing insights into the atomic order of meta-stable Sn/Ge/Si alloys (Germanium supersaturated with Tin) observed by the research group.
- **Department of Condensed Matter Physics** — **SNBNCBS, Kolkata**
  Summer Research Fellow, supervised by Prof. Tanusree Saha Dasgupta — *20 May 2015 – 8 July 2015*
  Performed DFT calculations on Perovskite compounds with an aim to find a good estimate for the DOS and bandgap for the bulk materials as a preliminary step for understanding 2DEG formation at perovskite interfaces.

Teaching Experience

- **Department of Computational and Data Sciences** — **Indian Institute of Science, Bangalore**
  Teaching Assistant, DS 284: Numerical linear algebra — *August 2022 – November 2022*
- **Department of Physics** — **Indian Institute of Technology, Bombay**
  Teaching Assistant, PH107: Quantum Physics and Application — *August 2016 – November 2016*

Conferences

- *Panigrahi, G.*, Kodali, N., *Motamarri, P.* An efficient hardware-aware matrix-free implementation for finite-element discretized matrix-multivector products. Student Research Symposium at IEEE International Conference on High-Performance Computing, Data, and Analytics, 2022. (Presenting author)
- Kodali, N., *Motamarri, P.* Finite-Element Based Computational Methodologies for Non-Collinear Magnetism and Spin-Orbit Coupling in Real-Space Density Functional Theory. Poster at SIAM Conference on Computational Science and Engineering, 2023. (Presenting author)

Publications

- *Mukherjee, S.*, Kodali, N., *Isheim, D., Wirths, S., Hartmann, J. M., Buca, D., Seidman, D. N., & Moutanabbir, O.* (2017). Short-range atomic ordering in nonequilibrium silicon-germanium-tin semiconductors. Physical Review B, 95(16), 161402. https://doi.org/10.1103/PhysRevB.95.161402
- Kodali, N., *Panigrahi, G., Panda, D., & Motamarri, P.* Fast hardware-aware matrix-free algorithm for higher order finite-element discretized matrix multi-vector products (under review in Journal of Parallel and Distributed Computing, 2023). http://doi.org/10.48550/arXiv.2208.07129
- Kodali, N., *& Motamarri, P.*, Non-collinear magnetism and spin-orbit coupling in real-space DFT calculations using finite-element basis (under preparation, 2023).

Awards and Honors

- CSIR-JRF Physics National rank 55 (2020)
- Gold medalist in Indian National Physics Olympiad-2013 and Indian National Chemistry Olympiad-2013.
- Alumnus of the Harry Messel International Science School (University of Sydney, 2013) on nanoscience.
- JEE advanced National rank 75 (2013)
- KVPY Fellow (an initiative by DST, Govt. of India) from 2011 to 2013.