

Sajid Ali

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Education

- 2016–Present **Northwestern University, Evanston, IL,**
Ph.D., Applied Physics,
Computational x-ray optics, New Techniques X-ray Microscopy.
- 2011–2016 **IIT Madras, Chennai, India,**
Masters of Tech. in Microelectronics and VLSI Design Electrical Engg.,
Master's Thesis : Impurity induced magnetism in Graphene.
- 2011–2016 **IIT Madras, Chennai, India,**
Bachelors of Technology, Electrical Engg.,
Minor: Physics.

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Research Experience

- 2016–Present **Zone Plate Testing, X-Ray Microscopy Group,** Northwestern University, PI: Prof Chris Jacobsen.
 - Tested high aspect ratio zone plates for efficiency and tilt tolerance at APS and NSLS.
 - Developing parallelized computer codes for high resolution x-ray optics simulation to model tilt misalignment effects.
- 2015–2016 **Magnetism in Graphene, Computational Condensed Matter Group,** IIT Madras, PI: Prof Ranjit Nanda.
 - Investigating the magnetic properties of functionalized monolayer and intercalated bilayer graphene using Density Functional Theory.
 - Studied a range of candidates for intercalation and performed stability analysis for those which exhibited a non-trivial magnetic moment.
- Summer 2015 **A preliminary DFT Study on the stability of $x\text{Li}_2\text{MnO}_3 \cdot (1-x)\text{LiMO}_2$ cathode materials,** Center for Automotive Energy Materials, ARCI IITM Research Park, PI: Dr Sahana MB.
 - Studied the relative stability of three structural phases of $\text{Li}_{1.15}(\text{Mn}_{0.54}\text{Ni}_{0.23}\text{Co}_{0.08})\text{O}_2$, a novel cathode material for Li-ion batteries.
 - Created complex heterostructures and studied their electronic structure using Density Functional Theory.

Teaching Experience

- 2018 **Department of Physics, Northwestern University, Evanston, IL,** Graduate Teaching Assistant.
 - Undergraduate Lab methods course for calculus based EM
 - Led laboratory sections to demonstrate and facilitate experiments.
 - Held discussion hours to facilitate learning by one-on-one discussion of homework problems.

- 2015 **Department of Electrical Engineering, IIT Madras, Chennai, India**, Graduate Teaching Assistant.
- The course has a C-language and Python-language component and serves as an introduction to the basics of scientific computing.
 - Facilitated lab sessions, held office hours and graded assignments.

Publications

- 2018 **Zone Plate Performance as a Function of Tilt Analyzed via Multislice Simulations** Syed Sajid Ali, Kenan Li, Michael Wojcik and Chris Jacobsen *Volume 24, Suppl. S2 (Proc. of the 14th Intl. Conf. on X-ray Microscopy) pp. 298-299*
- 2016 **Magnetism in intercalated graphene** Sajid Ali, BRK Nanda *AIP Conference Proceedings 1731, 130040*

Outreach, Volunteer and Leadership Experience

- 2018 Taught a class on Emergence for Splash at NU
- 2013 Graphic Designer for Saarang, IIT Madras
- 2013 Coordinator for Shaastra Symposium, IIT Madras
- 2012–2013 Coordinator for Colloquium, IIT Madras

Computer Skills

- Languages Python, C, Matlab
- Software PETSc, Scientific Python, QuantumEspresso
- Platforms Linux (CentOS, RHEL, Fedora, Ubuntu), Windows