

Sajid Ali

*PhD Candidate
Applied Physics
Northwestern University*

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Education

- 2016–Present **Northwestern University, Evanston, IL,**
Ph.D., Applied Physics,
Computational x-ray optics, Technique development for 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.

Research Experience

- 2018–Present **X-Ray Wave Propagation,**
X-Ray Microscopy Group, Northwestern University, PI: Prof Chris Jacobsen.
 - Developing parallelized computer codes for large scale wave propagation.
 - Implemented finite difference based wave propagation in PETSc.
- 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.
 - Developed code to simulate the effect of tilt misalignment.
- 2015–2016 **Magnetism in Graphene,**
Computational Condensed Matter Group, IIT Madras, PI: Prof Ranjit Nanda.
 - Investigated the magnetic properties of intercalated bilayer graphene using DFT.
 - Performed stability analysis for those which exhibited a non-trivial magnetic moment.
- Summer 2015 **A preliminary DFT Study on the stability of cathode materials,**
Center for Automotive Energy Materials, ARCI IITM Research Park, PI: Dr Sahana MB.
 - Studied the relative stability of three structural phases of a novel cathode material for Li-ion batteries.
 - Created complex heterostructures and studied their electronic structure using DFT.

Teaching Experience

- 2018 **Dept. of Physics & Astron., Northwestern University, Evanston, IL,** 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 **Dept. of Electrical Engg., IIT Madras, Chennai, India,** Graduate Teaching Assistant.
 - Introduction to the basics of scientific computing using C and Python.
 - 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 *Vol 24, Suppl. S2 (Proc. of the 14th Intl. Conf. on X-ray Microsc. 2018) pp. 298-299*
- 2016 **Magnetism in intercalated graphene** Sajid Ali, BRK Nanda *AIP Conference Proceedings 1731, 130040*

Conference & Workshops

- 2019 **PETSc User Meeting, Atlanta, USA,**
Talk: X-Ray Wave Propagation in PETSc,
Panel: Simulation Beyond PDEs (Can PETSc do more?).
- 2018 **X-Ray Microscopy, Saskatoon, Canada,**
Poster: Zone Plate Performance as a Function of Tilt Analyzed via Multislice Simulations.
- 2016 **DAE Solid State Physics Symposium, New Delhi, India,**
Poster: Magnetism in Intercalated Graphene.
- 2014 **Strongly correlated systems: From models to materials, Bengaluru, India,**
Workshop on theoretical and computational tools to study strongly correlated electron systems.

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

Programming	Python, C, Matlab, Bash
Software	PETSc, Scientific Python, QuantumEspresso
Perf. Eng.	Intel VTune, Intel APS
Sys. Admin.	Spack, Environment Modules, yum, dnf, apt
Soft. Eng.	Git (GitHub, Bitbucket), Travis CI, Codecov, Flake8, GNU Debugger
Platforms	Linux (CentOS, RHEL, Fedora, Ubuntu), Windows