

# Sajid Ali

*Applied Physics,  
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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 & Astro., 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.

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## 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*

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## Conference & Workshops

- 2019 **PETSc User Meeting, Atlanta, USA,**  
Talk: X-Ray Wave Propagation in PETSc.
- 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.

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## 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

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## 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