

LAXMIKANT PATHADE

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EDUCATION

- **Syracuse University** 2013-2017
PhD (Materials Chemistry)
Research Advisor: Prof. Mathew M. Maye
Thesis Topic: "Design and Synthesis of Transition Metal Core/Shell Nanoparticles with Hollow Internal Microstructures and Corrosion Resistant Properties"
- **Institute of Chemical Technology, Mumbai** 2009-2013
Bachelor of Technology (Chemistry)
Minors in Chemical Engineering, Organic Colorants

WORK & RESEARCH EXPERIENCE

- Graduate Researcher at Syracuse University** 2013-present
 - My doctoral studies focus mainly on the synthesis and characterization of transition metal core/shell nanoparticles that had unique properties such as internal voids and novel corrosion resistant properties. (Please see CV)
 - During my graduate studies, I published 3+ peer reviewed journal articles, filed 2 patents, and presented my work in regional and national conferences (~12 talks/posters).
 - Some of the other topics that I worked on are - Study of Oxidation Behavior in Transition Metal based Structured Core/Alloy Nanoparticles (CA-NPs); Corrosion Resistant Stainless Core/Shell Nanoparticles (corrosion paper); Synthesis of Novel Fe/Ni CA-NPs with Asymmetric Internal Voids; Radial Multi-Layered Transition Metal Shell Deposition on α -Fe NPs (patent); Characterization of Lead Halide Perovskite Nanocrystals. (published in ACS Nano, filed a patent); Silica Coating and Amine Functionalization of Magnetic CA-NPs (commercial project); Discrete Dipole Approximation Simulation on core/shell nanoparticle systems.
- Administrator at the X-ray Facility at Syracuse University** 2014-present
 - As a graduate facility admin, I oversee day to day operations of the powder X-ray diffractometer at the facility.
 - Responsible for new user training, queue management, data analysis, specialized sample processing, scheduling maintenance visits, Haskris (chiller) upkeep, and instrument troubleshooting.
- Teaching Assistant at Syracuse University** 2013-present
 - Taught General Chemistry and Honors General Chemistry (CHE 107-117, 129) courses at SU. My responsibilities included holding recitations & office hours, conducting labs, & reporting student progress.
 - Developed several labs including "Synthesis of Cesium Lead Perovskite (CsPbX_3) nanocrystals", "Comparing Optical Property of Fluorescent Compounds using Spectrometers", & "Solid State Modeling & X-ray Diffraction".
- Industrial Internships during Undergraduate Studies** 2012
 - During my undergraduate summer breaks, I interned at 2 medium sized pigment-manufacturing factories located in the industrial area near Mumbai. During this training period, I had an opportunity to observe unit operations of chemical engineering, manufacturing of reactive dyes and pigments.
 - Prepared a report on manufacturing, efficiency of units operations, with recommendations on workplace safety.

TECHNICAL SKILLS

Chemical Synthesis: Nanoparticles Synthesis (Transition and Noble Metals, Nano-perovskites, Quantum Dots) Schlenk Line and Glovebox techniques • Microwave synthesis • Organic Lab Experience
Structural Characterization: Powder and Single Crystal XRD (Currently work as facility admin)
Electron Microscopy: TEM / HR-TEM (trained on 3 different JEOL TEMs; trained new users) • EDS (Oxford Instruments Certification) • SEM • AFM (Bruker Innova) • Optical
Spectroscopy: XPS/ESCA • EDS • NMR • Raman • AA • Mass • FTIR • UV-Vis • PL
Technical Misc.: Magnetization in materials • Cyclic Voltammetry • DLS- ζ potential • Ultracentrifuge • Spin coater • Photolithography • TGA • DSC • Vernier Modules • Rotovap
Computational Analysis: Discrete Dipole Approximation (DDA) • knows about FDTD
Softwares: Origin • Plotly • Datagraph • Igor-Pro • ImageJ • ChemDraw • Vesta • Bruker Diffrac.Suite • CasaXPS • QUASES • Adobe Illustrator • Corel-Draw • Maya with CaDNano package
Languages: C++ • PYTHON (Numpy/Scipy) • Jekyll • HTML/Markdown • Familiar with Fortran
Computer Misc.: Raspberry PI • Networking basics • Wordpress/MAMP • Linux • \LaTeX • git