

LAXMIKANT LP PATHADE

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EDUCATION

Syracuse University

2013-2017

PhD in *Materials Chemistry* with Prof. Mathew M. Maye

Institute of Chemical Technology, Mumbai

2009-2013

Bachelor of Technology in *Chemistry*; Minors in *Chemical Engineering & Organic Colorants*

WORK & RESEARCH EXPERIENCE

Graduate Researcher at Syracuse University

2013-present

- My doctoral research focuses mainly on the design & synthesis of transition metal core/shell nanoparticles that exhibited uniquely *hollow internal microstructures*. This structural property was further exploited to enhance their *corrosion resistance* and thus creating truly “*stainless*” nanoparticles.
- Published **3+** peer reviewed journal articles, co-authored **2** patents, and presented my work in regional and national conferences (~**12** talks/posters). (Please see CV / website for the list)
- Other research topics include - ◦ Asymmetric Internal Voids in novel Fe/Ni core/alloy nanoparticles (CA-NPs) ◦ Silica-coated & amine-Functionalized Magnetic CA-NPs ◦ Synthesis & Characterization of CsPbX₃ Perovskite Nanocrystals ◦ Discrete Dipole Approximation (DDA) routines on CA-NP systems.

Administrator at the X-ray Facility at Syracuse University

2014-present

- As a graduate facility administrator, I oversee day to day operations of the powder X-ray diffractometer at Syracuse University’s shared X-ray facility.
- Responsible for new user training, queue management, specialized sample prep & data analysis, instrument troubleshooting, Haskris/chiller upkeep, scheduling maintenance & regulatory inspections.

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 new labs such as “*Synthesis of Cesium Lead Perovskite (CsPbX₃) nanocrystals*”, “*Comparing Optical Property of Fluorescent Compounds using Spectrometers*”, & “*Solid State Modeling & X-ray Diffraction*”.

Industrial Internships

- Worked on a research project for a *Fortune 500* chemical company in major capacity. 2017
- Interned at 2 medium-sized pigment-manufacturing plants in the industrial area near Mumbai, India. Observed unit operations of chemical engineering, manufacturing of reactive dyes and pigments, and prepared a report on manufacturing efficiency & recommendations on workplace safety. 2012

TECHNICAL SKILLS

- **Chemical Synthesis:** Nanoparticles (Transition and Noble Metals, Nano-perovskites, Quantum Dots) ◦ Schlenk Line and Glovebox techniques ◦ Microwave ◦ Organic Lab work
- **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) ◦ STEM ◦ 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) ◦ Familiar with FDTD
- **Softwares:** Origin ◦ Plotly ◦ Datagraph ◦ Igor-Pro ◦ ImageJ ◦ ChemDraw ◦ Vesta ◦ Bruker Diffrac.Suite ◦ CasaXPS ◦ QUASES ◦ Adobe Illustrator ◦ Corel-Draw ◦ Maya basics
- **Languages:** Python ◦ Jekyll ◦ HTML/Markdown ◦ Familiar with C/C++, Fortran
- **Computer Misc.:** Raspberry Pi ◦ Linux ◦ Wordpress/MAMP ◦ L^AT_EX ◦ git