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 **6+** peer reviewed journal articles, co-authored **2** patents, and presented my work in regional and national conferences (∼**12** talks/posters). (Please see the CV for complete 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 $CsPbX_3$ 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 (CsPb*X_3*) 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 ○ Sputter Coater ○ 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 ○ TEMCON (JEOL) ○ Digital Micrograph (Gatan) ○ AZtec (Oxford Instruments) ○ 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 ○ 3D-printing ○ Linux ○ Wordpress/MAMP ○ LaTeX○ git