

LAXMIKANT LP PATHADE

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PROFILE

Resourceful materials researcher with 8+ years of training, 4+ years of facility administrator experience, exceptional work-ethic, team player with strong written and oral communications skills.

Skilled in materials research, wet-lab syntheses, structural characterization, electron microscopy, spectroscopy, computational analysis, technical softwares, & computers.

WORK & RESEARCH EXPERIENCE

X-ray Facility Administrator at Syracuse University 2014-present

- Trained new users on the diffractometer and necessary safety protocols; coordinated user queue.
- Collaborated with internal & external users for specialized sample prep & data analysis.
- Maintained auxiliary chiller operations & repaired minor breakdowns. Scheduled maintenance & regulatory inspections.

Graduate Researcher at Syracuse University 2013-present

- Published **6** peer reviewed journal articles, co-authored **2** patents, and presented work in several professional conferences.
- Investigated synthetic design of transition metal nanoparticles (NPs) that exhibited *hollow internal microstructures*.
- Successfully exploited our findings to improve *corrosion resistance* in these NPs and create truly “*stainless*” nanoparticles.
- Explored other topics including - asymmetric internal voids in novel NP systems, silica coating & surface functionalization of magnetic NPs, reaction monitoring using CsPbX₃ perovskites, & DDA computation routines.

Teaching Assistant at Syracuse University 2013-present

- Received the Graduate Teaching Mentor Award in 2015 from the graduate school at SU.
- Developed 4 new lab modules to introduce advanced materials chemistry topics such as synthesis & properties of NPs.
- Supervised several undergraduate trainees & summer REU researchers in the Maye lab.

Industrial Internships

- Executed a synthesis scale-up & technology transfer project for a *Fortune 500* chemical company in record time. **2017**
- Interned at 2 medium-sized pigment-manufacturing plants in the Mumbai industrial area. Reviewed unit operations of chemical engineering, and authored a report on manufacturing efficiency & workplace safety. **2012**

EDUCATION

Syracuse University 2013-2018

Ph.D. Candidate in *Materials Chemistry* with Prof. Mathew M. Maye

Thesis: Internal Morphology & Corrosion Resistance in Stainless Steel Nanoparticles

Institute of Chemical Technology, Mumbai 2009-2013

B.Tech. in *Organic Colorant Technology*; Minors in *Chemical Engineering*

TECHNICAL SKILLS

- **Synthesis:** Nanoparticles (Transition and Noble Metals, Perovskites, Quantum Dots) · Air-free Techniques (Schlenk Line and Glovebox) · Microwave · Organic Lab work
- **Structural Characterization:** Powder and Single Crystal X-ray Diffraction (Currently work as facility admin)
- **Electron Microscopy:** TEM / HR-TEM (trained on 3 different JEOL TEMs; trained new users) equipped with EDS & STEM detectors · SEM (JEOL IT100LA) · AFM (Bruker Innova) · Optical
- **Spectroscopy:** X-Ray Photoelectron Spectroscopy (XPS/ESCA) · Energy Dispersive X-ray Spectroscopy (EDS Certification from Oxford Instruments) · NMR · Raman · Mass-Spec · FTIR · UV-Vis · Photoluminescence (PL)
- **Technical Misc.:** Magnetization in materials · Cyclic Voltammetry · Dynamic Light Scattering (DLS)- ζ potential · Ultracentrifuge · Spin & Sputter coater · Thermo-gravimetric analysis (TGA) · DSC · Vernier Modules
- **Computational Analysis:** Discrete Dipole Approximation (DDA) · Familiar with FDTD
- **Softwares:** Origin · Plotly · ImageJ · ChemDraw · Vesta · TEMCON (JEOL) · Digital Micrograph (Gatan) · AZtec (Oxford Instruments) · Bruker Diffrac.Suite · CasaXPS · Adobe Illustrator · Corel-Draw · Maya (basics) · Tinkercad
- **Languages & Computer Misc.:** Python · Jekyll · Wordpress · HTML · 3D-printing · Raspberry Pi · git · L^AT_EX