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.

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*

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**

- 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.
- Executed a synthesis scale-up & technology transfer project for a *Fortune 500* chemical company in record time.
- Published **6** peer reviewed journal articles, co-authored **2** patents, and presented work in several professional conferences.
- Explored other research topics including - asymmetric internal voids in novel NP systems, silica coating & surface functionalization of magnetic NPs, reaction monitoring using $CsPbX_3$ 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.
- Supervised several undergraduate trainees & summer REU researchers in the Maye lab.
- Developed 4 new lab modules to introduce advanced materials chemistry topics such as synthesis & properties of NPs.

Internships

- 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**
- Summer REU researcher at ICTM, performed systematic study to synthesize an organic dyestuff intermediates. **2011**

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 · FTIR · UV-Vis · Photoluminescence (PL)
- **Technical Misc.:** Magnetization in materials · Cyclic Voltammetry · Spin & Sputter coater · Dynamic Light Scattering (DLS)- ζ potential · Thermo-gravimetric analysis (TGA)
- **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 · Illustrator · Corel-Draw · Maya (basics) · Tinkercad
- **Languages & Computer Misc.:** Python · Jekyll · Wordpress · HTML · 3D-printing · Raspberry Pi · git · LaTeX