

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, surface science, X-ray diffraction, electron microscopy, spectroscopy, AFM, computational analysis, & technical softwares.

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

Materials Chemistry Intern at Pelitex Inc. **2017**

- Executed a synthesis scale-up & technology transfer project for a *Fortune 500* chemical company in record time.
- Designed new synthesis and safety protocols for materials synthesis at increased scales and improved waste recycling.
- Collaborated with researchers to optimize the silica shell coating to improve hydrophilicity of products.

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.
- Scheduled maintenance & regulatory inspections. Maintained auxiliary chiller operations & repaired minor breakdowns.

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.
- Calculated electromagnetic scattering around metallic surfaces using Discrete Dipole Approximation Fortran code.
- Published **6** peer reviewed journal articles, co-authored **2** patents, and presented research 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 CsPbX₃ perovskites, & corrosion in metallic thin films.
- Received the Graduate Teaching Mentor Award in 2015 from the graduate school at SU.

Internships

- Interned at 2 medium-sized pigment-manufacturing plants in Mumbai industrial area. Reviewed unit operations of chemical engineering and authored a report on manufacturing efficiency & workplace safety. **2012**
- Summer research intern at ICT Mumbai; performed systematic study to synthesize an organic dyestuff intermediate. **2011**

TECHNICAL SKILLS

- **Synthesis:** Nanoparticles (Transition and Noble Metals, Perovskites, Quantum Dots) · Air-free Techniques (Schlenk Line and Glovebox) · Organic Lab work
- **Structural Characterization:** Powder and Single Crystal XRD (Bruker X-ray diffractometers; Current Facility Admin)
- **Electron Microscopy:** AFM (Bruker Innova) · HRTEM equipped with EDS & STEM detectors (full user on 3 different JEOL TEMs; also trained new users) · SEM (JEOL IT100LA) · Optical
- **Spectroscopy:** X-Ray Photoelectron Spectroscopy (XPS/ESCA) · Energy Dispersive X-ray Spectroscopy (Certification from Oxford Instruments) · NMR · FTIR · UV-Vis · Photoluminescence (PL)
- **Technical Misc.:** HPLC · GCMS · Dynamic Light Scattering (DLS)- ζ potential · Magnetization in materials · Thermogravimetric analysis (TGA)
- **Computational Analysis:** Discrete Dipole Approximation (DDA) · Familiar with FDTD
- **Softwares:** MS-Office · ImageJ · Fiji · Bruker Diffrac.Suite · Origin · Plotly · ChemDraw · Vesta · TEMCON (JEOL) · Digital Micrograph (Gatan) · AZtec (Oxford Instruments) · CasaXPS · Illustrator · Corel-Draw · Maya (basics)
- **Languages & Computer Misc.:** Python · Jekyll · Wordpress · HTML · 3D-printing · Raspberry Pi · git · L^AT_EX