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Education:

Ph.D., University of Massachusetts, Amherst, 2002-May 2007 (projected)
M.Sc. (Organic Chemistry), 1st div, Indian Institute of Technology (IIT), Roorkee, India, 1999-2001
B. Sc. 1st div, C.C.S. Meerut University, India, 1996-1999.

Honors and Awards:

Silver Medalist with 9.37 GPA at 10.00 scale in 2001 batch, M.Sc. Chemistry, IIT Roorkee, India.
Class Representative in IIT Roorkee based on Merit, Department of Chemistry for 1999-2001 batch India.

Professional Affiliation:

2003-present: Member of the American Chemical Society (ACS)
2006 Member of the Materials Research Society (MRS)

Professional Experience:

2003-Present Research Assistant (Professor Vincent M. Rotello)
2004 Teaching Assistant, General Chemistry Laboratory 111 and 112
2002-2003 Teaching Assistant, General Chemistry 111
2001-2002 Worked as Research Executive in American based company "Libraria" in India

Graduate Research under the Direction of Professor Vincent M. Rotello, University of Massachusetts, Amherst, 2003-present:

Summary of Research:

Investigating the self-assembly of metallic (**gold**, **iron oxide** and **iron-platinum**) nanoparticles with **polymers** and **proteins**. The unique properties of nanoparticles (electronic, optical and magnetic) were controlled and modulated based upon the interparticle spacings and dipole-dipole interactions. Patterning of nanoparticles on di-block polymers and fabrication of controlled protein-nanoparticle assemblies were also studied and analyzed.

Experience:

- Fabrication and characterization of **Nano-materials**.
- Analyzing materials for **optical** and **magnetic** applications.
- Synthesis of metallic **nanoparticles** and **small molecules** and **ligands** for self-assembly using surface recognition.

Instrumentation Skills:

- Small Angle X-Ray Scattering (**SAXS**) and X-ray Diffraction (**XRD**)
- Transmission Electron Spectroscopy (**TEM**) and Scanning Electron Microscopy (**SEM**) for morphological study.
- Atomic Force Microscopy (**AFM**) for surface characterization.
- Superconducting Quantum Interference Device (**SQUID**) for magnetic studies.
- Circular Dichroism (**CD**), Dynamic Light Scattering (**DLS**), Gel Electrophoresis (**GE**) quantification.
- Cyclic Voltammetry (**CV**) for electrochemical studies.
- UV-Visible (**UV**) and Fluorescence Spectroscopy for optical studies.

Journal Publications:

- 10) **Srivastava, S.**; Samanta, B.; Arumugam, P.; Han, G.; Rotello, V. M. "Modulation of Spacing and Magnetic Properties of Iron Platinum (Fe-Pt) and Iron Oxide (Fe₃O₄) Nanoparticles Assembled with DNA" *In Preparation*.
- 9) Bayraktar, H.; **Srivastava, S.**; You, C. C.; Rotello, V. M.; Knapp, M. J. "The Reversible control of Protein mediated Self-assembly of Gold Nanoparticles" *In Preparation*.
- 8) **Srivastava, S.**; Jordan B. J.; Xu, H.; Rotello, V. M. "Tunable Porous Gold Surfaces created by Assembly of Au Nanoparticles with Polyhedral Oligomeric Silsesquioxanes (POSS) at different Temperatures" *Submitted In Langmuir*.
- 7) Nakade, H.; Jordan B. J.; Xu, H.; Han, G.; **Srivastava, S.**; Arvizo, R. R.; Rotello, V. M. "Chiral Translation and Cooperative Self-Assembly of Helically Stacking Structures Using Specific Molecular Recognition Dyads" *Submitted In J. Am. Chem Soc.*
- 6) Frankamp, B. L.; Fischer, N. O.; Hong, R.; **Srivastava, S.**; Rotello, V. M. "Surface Modification using Cubic Silsesquioxane Ligands. Facile Synthesis of Water-Soluble Metal Oxide Nanoparticles" *Chem. Mat.*, **2006**, *18*, 956.
- 5) **Srivastava, S.**; Frankamp, B. L.; Rotello, V. M. "Controlled Plasmon Resonance of Gold Nanoparticles Self-Assembled with PAMAM Dendrimers" *Chem. Mat.* **2005**, *17*, 487.
- 4) **Srivastava, S.**; Verma, A.; Frankamp, B. L.; Rotello, V. M.; "Controlled Assembly of Protein-Nanoparticle Composites through Protein Surface Recognition" *Adv. Mat.*, **2005**, 617.
- 3) Verma, A.; **Srivastava, S.**; Rotello, V. M. "Modulation of the Interparticle Spacing and Optical Behavior of Nanoparticle Ensembles using a Single Protein Spacer" *Chem. Mater.* **2005**, *17*, 6317.
- 2) Shenhar, R.; Jeoung, E.; **Srivastava, S.**; Norsten, T. B.; Rotello, V. M. "Cross-Linked Nanoparticle Stripes and Hexagonal Networks Obtained Via Selective Patterning of Block Copolymer Thin Films" *Adv. Mat.* **2005**, *17*, 2206.
- 1) Carroll, J. B.; Frankamp, B. L.; **Srivastava, S.**; Rotello, V. M. "Electrostatic Self-Assembly of Structured Gold Nanoparticle-Polyhedral Oligomeric Silsesquioxanes (POSS) Nanocomposites" *J. Mat. Chem.*, **2004**, *14*, 690.

Book Chapter:

- 1) Hao, X.; **Srivastava, S.**; Rotello, V. M. "Nanocomposites based on Hydrogen Bonds" *In preparation*.

Preprints and Presentations:

3. March, 2006: American Chemical Society, Atlanta. "Patterning of crosslinked gold nanoparticles on block copolymers" **Srivastava, S.**; Shenhar, R.; Jeoung, E.; Norsten, T. B.; Rotello, V. M. **Oral** presentation in Polymer Division. (**Polymer preprint, POLY-366**)
2. August, 2005: American Chemical Society, Washington D.C. "Self-assembled Gold/PAMAM nanocomposites with controlled plasmon resonance" **Srivastava, S.**; Frankamp, B. L.; Rotello, V. M. **Poster** presentation in Polymer Division. (**Polymer preprint, POLY-127**)
1. August, 2005: American Chemical Society, Washington D.C. "Protein-nanoparticle assembly through protein surface recognition" **Srivastava, S.**; Verma, A.; Frankamp, B. L.; Rotello, V. M. **Oral** presentation in Polymer Division. (**Polymer preprint, POLY-072**)

Presentations:

8. March, 2006: American Chemical Society, Atlanta. "Tunable porous gold surfaces created by self-assembly of gold nanoparticles with polyhedral oligomeric silsesquioxane (POSS) at different temperatures" **Srivastava, S.**; Jordan B. J.; Xu, H.; Rotello, V. M. **Poster** presentation in Colloid Division.
7. September 2005: Research fest, Department of Chemistry. "Self-assembled Gold/PAMAM nanocomposites with controlled plasmon resonance" **Srivastava, S.**; Frankamp, B. L.; Rotello, V. M. **Poster** presentation.
6. August, 2005: American Chemical Society, Washington D.C. "Supramolecular helical induction using specific hydrogen bonded dyads" Nakade, H.; Jordan B. J.; Xu, H.; Han, G.; **Srivastava, S.**; Arvizo, R. R.; Rotello, V. M. **Oral** presentation in Organic Division.
5. August, 2005: American Chemical Society, Washington D.C. "Protein-directed self-assembly of nanoparticles into controlled composites with variable functional response" Verma, A.; **Srivastava, S.**; Frankamp, B.; Rotello, V. M. **Oral** presentation in Organic Division.

4. August, 2005: American Chemical Society, Washington D.C. "Utilization of nanoparticle receptors for biomacromolecular surface recognition and as building blocks for materials" Verma, A.; Fischer, N.O.; **Srivastava, S.**; Hong, R.; Rotello, V. M. **Poster** presentation in Organic Division.
3. June, 2005: Gordon Research Conference (Chemistry of Supramolecules & Assemblies) "Nanoparticles: Scaffolds for biomacromolecule recognition, building blocks for materials" Verma, A.; Fischer, N.O.; **Srivastava, S.**; Hong, R.; Rotello, V. M. **Poster** presentation.
2. October, 2004: Center for UMass-Industry Research on Polymers (CUMIRP) Fall 2003 Meeting, Amherst, MA "Controlled Plasmon Resonance of Gold Nanoparticles Self-Assembled with PAMAM Dendrimers" **Srivastava, S.**; Frankamp, B.; Rotello, V.M. **Poster** presentation.
1. August, 2004: American Chemical Society, Philadelphia. "Polyhedral oligomeric silsesquioxane (POSS) units as molecular recognition elements" Carroll, J. B.; Frankamp, B. L.; **Srivastava, S.**; Rotello, V. M. **Poster** presentation in Organic Division.

Service Responsibilities:

4. Seminar representative, Organic Division, Department of Chemistry, University of Massachusetts, Amherst (2003-2004).
3. Research supervision of two undergraduate and four junior graduate students, Rotello Laboratory, University of Massachusetts, Amherst, 2003-present.
2. Events Coordinator in 'ISA in UMASS-Amherst, 2003-2004.
1. Event organizer in National Symposium on Photochemistry, IIT Roorkee, India 2000.