WPI CHEMISTRY & BIOCHEMISTRY

**Department of Chemistry and Biochemistry**
**Worcester Polytechnic Institute**

**Wednesday, February 18th, 2026**
**12:00 PM**
**Gateway Park 1002**

# Dr. Ralu Nana Silvia Divan

## Chemist
## Argonne National Labs

### "Nanofabrication: Examples of process development, integration and applications."

The promise of nanotechnology will not be realized unless nanometer-scale structures can be precisely and reproducibly fabricated and assembled together into a working nanosystem that can be probed, controlled and manipulated in a reliable manner. The most significant obstacles to the implementation of functional nanosystems come from limitations associated with the reproducibility of the employed nanofabrication processes, the design and integration of nanoscale materials, and the limited existing capabilities for manipulation and probing of nanostructures. There are two main approaches for nanodevices fabrication, (i) "top-down" – a method originating from semiconductor industry, being based on building something by starting with a larger component and adding or carving away materials, and (ii) "bottom-up" – building something by assembling smaller components (like building a car engine out of components), the method originating from biology and chemistry, and translated into covering surface with particles and other chemical entities that self-assemble or create functionality the way they fit together. The presentation will focus on "top-down" approach, emphasizing two major steps, lithography and etching. Examples of process development and integration will be presented.

***Host: Dr. Rong Wang***