

Nanoscale Science & Engineering Center (NSEC)

Director: Chad A. Mirkin

Presenter: Teri W. Odom

Northwestern University

NORTHWESTERN UNIVERSITY - INSTITUTE FOR NANOTECHNOLOGY
National Science Foundation
Nanoscale Science & Engineering Center for Integrated Nanopatterning & Detection Technologies



NSEC Mission

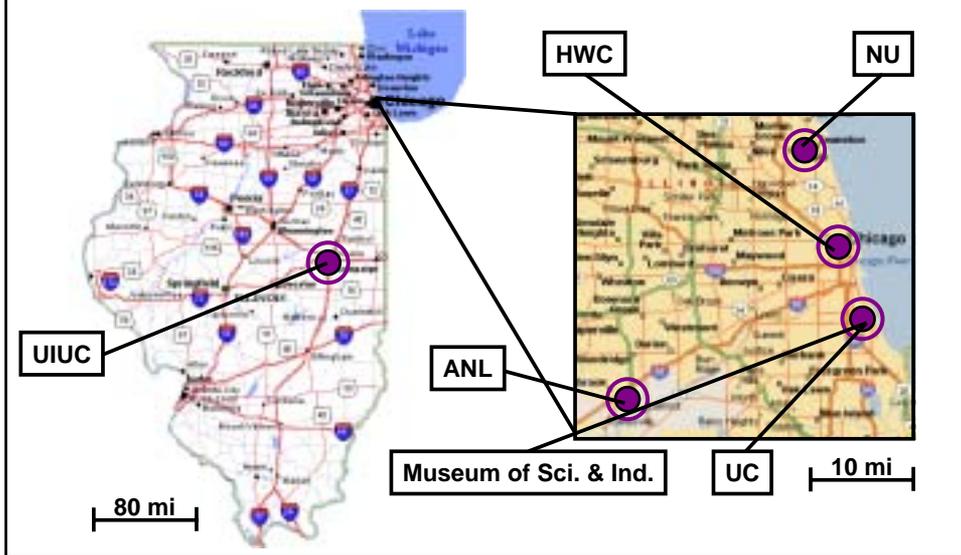
To advance discovery and knowledge within the field of nanotechnology through focused and collaborative research leading to the development of powerful new biological and chemical detection systems, which have the potential to revolutionize many diverse fields.

This research forms the foundation for and is effectively integrated with innovative and diverse educational outreach programs that inform, engage, and inspire people of all ages, and broaden the participation of under-represented minorities.

NORTHWESTERN UNIVERSITY - INSTITUTE FOR NANOTECHNOLOGY
National Science Foundation
Nanoscale Science & Engineering Center for Integrated Nanopatterning & Detection Technologies



Synergistic Team



Synergistic Research Groups



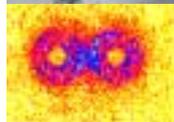
Nanopatterning SRG

Leader: Mark Hersam
Co-Leader: Richard Van Duyne



Optical Nanoarrays SRG

Leader: Milan Mrksich
Co-Leader: George Schatz

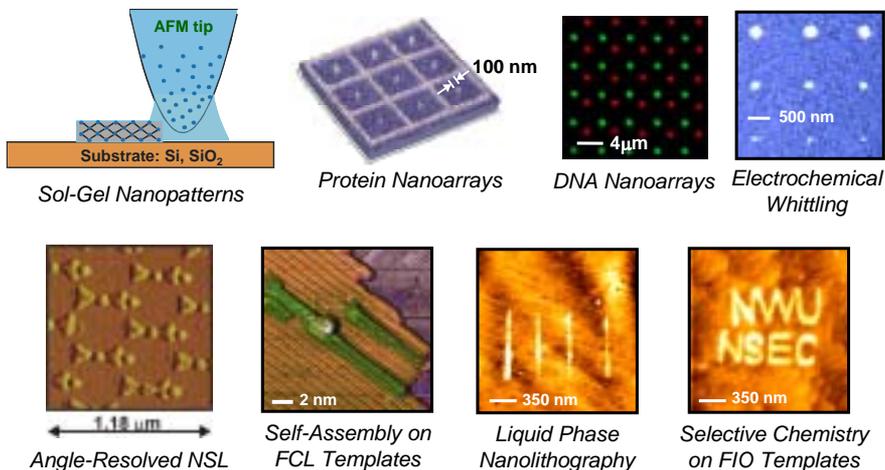


E-Chip SRG

Leader: Annelise Barron
Co-Leader: Chang Liu

Recent Accomplishments

Nanopatterning SRG: Fundamentals

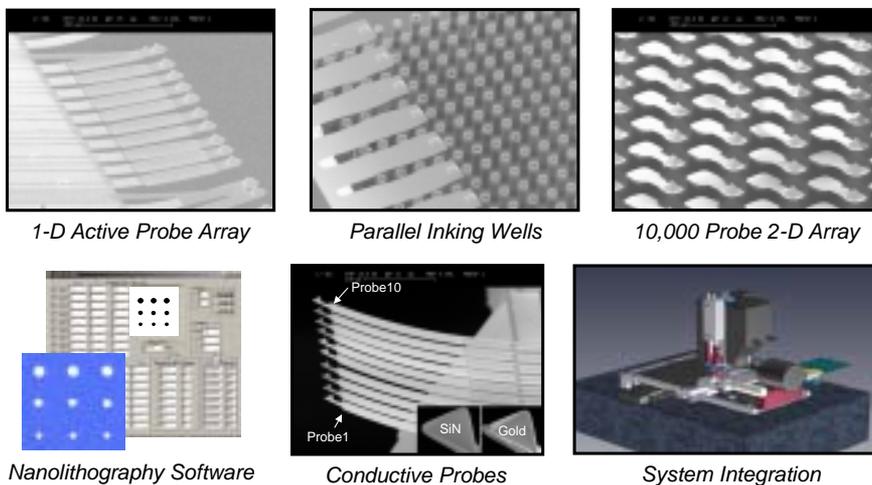


NORTHWESTERN UNIVERSITY - INSTITUTE FOR NANOTECHNOLOGY
 National Science Foundation
 Nanoscale Science & Engineering Center for Integrated Nanopatterning & Detection Technologies



Recent Accomplishments

Nanopatterning SRG: Nanolithography Tool Development



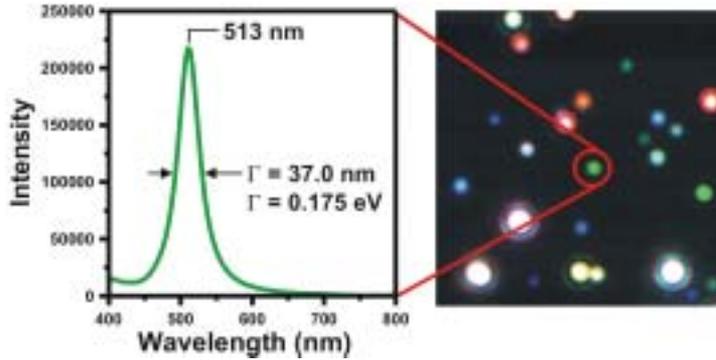
NORTHWESTERN UNIVERSITY - INSTITUTE FOR NANOTECHNOLOGY
 National Science Foundation
 Nanoscale Science & Engineering Center for Integrated Nanopatterning & Detection Technologies



Recent Accomplishments

Optical Nanoarrays SRG: Single Nanoparticle Sensors

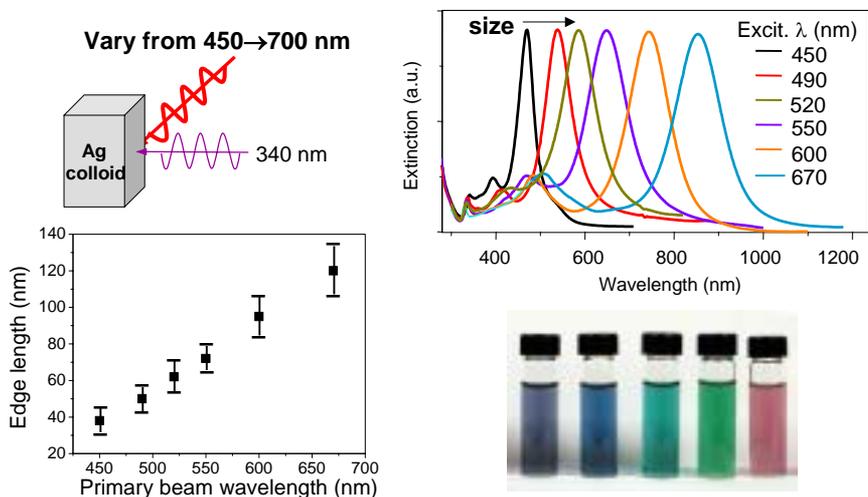
Single Nanoparticle Sensor: Dark-Field Microscopy and Single Nanoparticle LSPR Scattering Spectrum



McFarland and Van Duyne, Nano Lett. submitted (2003).

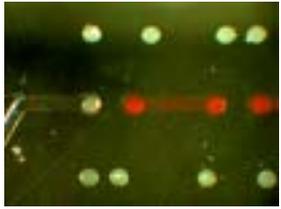
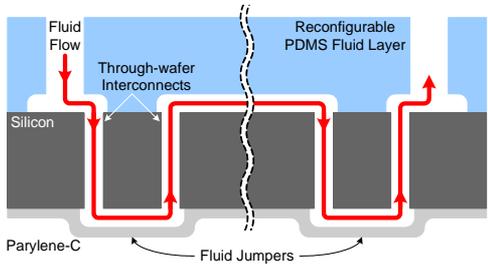
Recent Accomplishments

Optical Nanoarrays SRG: Control of Size with Wavelength



Recent Accomplishments

E-Chip SRG: Fluid Jumper ©



NORTHWESTERN UNIVERSITY - INSTITUTE FOR NANOTECHNOLOGY
 National Science Foundation
 Nanoscale Science & Engineering Center for Integrated Nanopatterning & Detection Technologies



Comprehensive Educational Outreach Informed by NSEC Research



Precollege



General Public



Undergraduates



H.S. Teachers



Minority Students



Students & Postdocs

NORTHWESTERN UNIVERSITY - INSTITUTE FOR NANOTECHNOLOGY
 National Science Foundation
 Nanoscale Science & Engineering Center for Integrated Nanopatterning & Detection Technologies



Questions?

