

Joint
Condensed Matter
and
Center for Soft Matter and Biological Physics
Seminar

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**Soft-Nanomaterials, Interfaces, and
Micro-Nanofabrication to Build Tools and
Functional Devices**

Monday, August 27, 2018

4:00pm – 5:00pm

304 Robeson Hall

New competitive technologies should be developed to deal with the world's emerging problems in healthcare, environmental, agriculture, energy and security sectors to benefit a broad spectrum of society while using minimal resources. Multifunctional interfaces of nanomaterials can be used to tackle such glitches by developing sensors and detection devices such as biosensors, explosives trace detectors, mechanical-stress sensors, wastewater management systems and energy storage devices owing to their nanoscopic surface properties. Considering this, several catalytic and photocatalytic metal/metal-oxide semiconductor nanostructures have been synthesized and used for environmental remediation, *point-of-care* diagnostics and energy storage applications. Several fabrication techniques including electrospinning, microfabrication, 3D printing *etc.* have been used to make functional nano/micro devices. Various physicochemical characterization techniques are used to study their properties in nanoscale. Furthermore, effort has been made on surface patterning and fabricating stretchable electronics by integration of conducting liquid metal in soft elastomers to explore ways to utilize these 'softer than skin' materials for bioelectronic applications. Finally, this concludes with an outlook and future challenges of these materials within this context.