



Department of Civil Engineering

**FALL 2021 SEMINAR SERIES**

**Dr. Shanshan Yao**

Assistant Professor

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**Monday, November 22, 1:00 – 1:55 PM, Frey Hall 309**

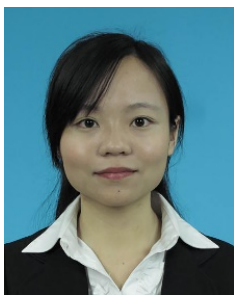
**ZOOM LINK:** Meeting ID: 950 8981 9867; Passcode: 860265

<https://stonybrook.zoom.us/j/95089819867?pwd=NzdKQUJXU3J3NFN4VlpBUlp4bDFhUT09>

## **Nanomaterial-Enabled Soft Electronics towards Healthcare, Activity Tracking, and Human-Machine Interaction**

### **Abstract**

Flexible and stretchable electronics that can be attached onto curvilinear and dynamic surfaces such as human skin, biological tissue, and robotic skin, allow for continuous monitoring of physiological and environmental indicators. With continued development of nanomaterials and innovations in deformable structures and manufacturing techniques, nanomaterial-enabled flexible and stretchable electronics have witnessed remarkable advances over the past decade. In addition, soft actuators and robotics that can mimic biological systems with lifelike motions (e.g., walkers, swimmers, rollers, grippers, tentacles) is becoming an emerging frontier due to its safe and friendly interactions with human and environment. In this talk, I will first present our research efforts on nanomaterials-enabled wearable devices and their applications in healthcare, activity tracking, and human machine interfaces. I will then talk about our work on nanomaterial-enabled soft actuators and soft robotics.



**About the Speaker:** Dr. Shanshan Yao received her Ph.D. in Mechanical Engineering (with a minor in Materials Science Engineering) from North Carolina State University and M.S. in microelectronics and solid-state electronics from Xi'an Jiaotong University. Dr. Yao joined the Mechanical Engineering Faculty at Stony Brook University in the Spring of 2020. Her research is primarily in the areas of functional materials, smart structures, advanced manufacturing, and soft electronics. Professor Yao's research aims to provide new solutions and explore new applications in personal healthcare, fitness tracking, rehabilitation, soft robotics, and entertainment through combined innovations in materials engineering, mechanical design, multi-scale manufacturing and integration. Examples of her research

interests include synthesis and characterization of nano/micro materials and structures; manufacturing and integration techniques for smart devices; soft actuators and soft robotics; and flexible and stretchable electronics.