

Advanced Manufacturing Seminar Series

Friday, April 9, 2021
10:00 AM – 11:30 AM (Pacific Time)

Registration link: https://usc.zoom.us/webinar/register/WN_kMleLeQQSca4oToi6Xj8Nw

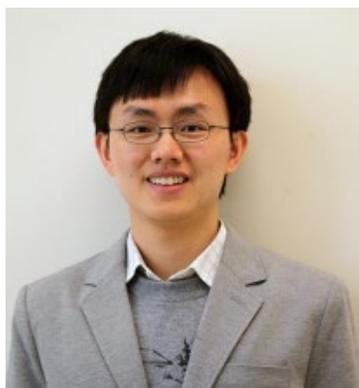
Advanced Manufacturing and Material Design for Soft Electronics:

From the Skin to Below the Skin

Dr. Sheng Xu

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Abstract: Soft electronic devices that can noninvasively and continuously acquire vital signs from the human body represent an important trend for healthcare. Combined strategies of advanced manufacturing and materials design allow the integration of a variety of components and devices on a soft platform, resulting in functional systems with minimal constraints on the human body. In this presentation, I will demonstrate a wearable multichannel patch that can sense a collection of signals from the human skin in a wireless mode. Additionally, integrating high-performance ultrasonic transducers on the stretchable substrate adds a new third dimension to the detection range of conventional soft electronics. Ultrasound waves can penetrate the skin and noninvasively capture dynamic events in deep tissues, such as blood pressure and blood flow waveforms in central arteries and veins. This soft platform holds profound implications for a wide range of applications in consumer electronics, sports medicine, defense, and clinical practices.



Biography: Dr. Sheng Xu is currently an assistant professor in the Department of Nanoengineering at the University of California San Diego. He received his B.S. in Chemistry from Peking University and Ph.D. in Materials Science and Engineering from Georgia Institute of Technology, followed by postdoctoral studies at the University of Illinois at Urbana-Champaign. His group is interested in developing new materials and fabrication strategies for soft electronics. His research has been presented to the Congressmen and Congresswomen as a testimony of NIH's extramural research during a Congressional Hearing. He has been recognized by many awards, including NIH MIRA, NIH Trailblazer Award, Sloan Fellowship, Wellcome Trust Innovator Award, MIT TR35, and MRS Outstanding Young Investigator Award. He is an NAS Kavli Fellow and an NAE Frontier of Engineering. He serves Nano Research as a Young Star Editor.