



RUUSUUF

**SEMINARS IN
CHEMICAL AND BIOMOLECULAR ENGINEERING****Friday, February 10, 2017 10:00AM****Boelter Hall → 3400**

Presented by

Dr. Wei GaoPostdoctoral Fellow, Electrical Engineering and Computer Sciences
University of California, Berkeley***“Bioelectronic Devices for Personalized and Precision Medicine: From Wearable Sensors to Medical Nanorobots”***

The rising clinical and basic research interest in personalized and precision medicine promises to revolutionize traditional medical practices. This presents a tremendous opportunity for developing bio-electronic devices toward predictive analytics and treatment. An ecosystem consisting of emerging wearable biosensors and medical nanorobots can potentially combine health monitoring with delivery of therapy and offer distinct advantages in realizing personalized and precision medicine. In this talk, I will firstly introduce fully-integrated biosensors for multiplexed in-situ perspiration analysis, which can selectively measure a wide spectrum of sweat analytes (e.g. metabolites, electrolytes and heavy metals) and provide insightful information about our health state. Then I will discuss the propulsion and applications of the synthetic nanorobots which have the potential to navigate through the human body for precision therapy internally, without the need for invasive surgical incisions. These bioelectronic devices open the door to a wide range of personalized diagnostic and therapeutic applications. Extending these studies to charge-transporting polymers used in devices will lead to better control of host-guest interactions.

Wei Gao received his PhD in Chemical Engineering at University of California, San Diego in 2014 as a Jacobs Fellow and HHMI International Student Research Fellow. He is currently a postdoctoral fellow in the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley. He is a recipient of 2016 MIT Technology Review 35 Innovators Under 35 (TR35) and 2015 ACS Young Investigator Award (Division of Inorganic Chemistry). His research interests include wearable and flexible electronics, biosensors, internet of things, nanorobotics and nanomedicine.