

Carnegie Mellon University

Materials Science & Engineering

presents

Skin-Inspired Electronic Materials and Devices

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Abstract

Skin is the body's largest organ, and is responsible for the transduction of a vast amount of information. This conformable, stretchable and biodegradable material simultaneously collects signals from external stimuli that translate into information such as pressure, pain, and temperature. The development of electronic materials, inspired by the complexity of this organ is a tremendous, unrealized materials challenge. However, the advent of organic and carbon-based electronic materials may offer a potential solution to this longstanding problem. In this talk, I will describe organic and carbon nano electronic materials to mimic skin functions. These new materials enabled unprecedented performance or functions in medical devices, energy storage and environmental applications.

Biography

Zhenan Bao is a Professor of Chemical Engineering at Stanford University. Prior to joining Stanford in 2004, she was a Distinguished Member of Technical Staff in Bell Labs, Lucent Technologies from 1995-2004. She has over 350 refereed publications and over 50 US patents with a Google Scholar H-Index of >100. She pioneered a number of materials design concepts for organic electronic materials. Her work has enabled flexible electronic circuits and displays. In her recent work, she has developed skin-inspired organic electronic materials to enable unprecedented performance or functions in medical devices, energy storage and environmental applications.

Bao served as a Board Member for the National Academy Board on Chemical Sciences and Technology and Board of Directors for the Materials Research Society (MRS). She is an Associate Editor for Chemical Sciences. She serves/served on the international advisory board for Nature Asia Materials, Journal of American Chemical Society, Advanced Materials, Advanced Functional Materials, Advanced Energy Materials, Advanced Electronic Materials, ACS Nano, Chemistry of Materials, Nanoscale, Chemical Communication, Macromolecules, Organic Electronics, Materials Horizon and Materials Today.

Bao is a Fellow of ACS, AAAS, MRS, SPIE, ACS PMSE and ACS POLY. Bao was the recipient of the AIChE Andreas Acrivos Award for Professional Progress in Chemical Engineering 2014, ACS Polymer Division Carl S. Marvel Creative Polymer Chemistry Award 2013, ACS Author Cope Scholar Award 2011, Royal Society of Chemistry Beilby Medal and Prize 2009, IUPAC Creativity in Applied Polymer Science Prize 2008, American Chemical Society Team Innovation Award 2001, R&D 100 Award 2001. Bao was selected by MIT Technology Review magazine in 2003 as one of the top 100 young innovators. She is among the **world's top 100 materials scientists** by **Thomson Reuters**. She is a co-founder and on the Board of Directors for C3 Nano, a silicon-valley venture funded start-up commercializing flexible transparent electrodes using nanomaterials.

Doherty Hall 2210, 11:30AM
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