Northwestern | McCORMICK SCHOOL OF ENGINEERING
Materials Science and Engineering

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Tuesday, November 7, 2017
4:00pm Tech L211

Skin-Inspired Organic Electronic Materials and Devices

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-based electronic materials may offer a potential solution to this longstanding problem. In this talk, I will describe the design of organic electronic materials and devices to mimic skin functions. These new materials enabled unprecedented performance and functions in devices that are of interest for bio-electronic interfaces and applications.

Zhenan Bao is a K.K. Lee Professor of Chemical Engineering, and by courtesy, a Professor of Chemistry and a Professor of Material Science and 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 400 refereed publications and over 60 US patents with a Google Scholar H-Index >120. She pioneered a number of 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, which resulted in unprecedented performance or functions in medical devices, energy storage and environmental applications.

Bao is a member of the National Academy of Engineering. She is a Fellow of MRS, ACS, AAAS, SPIE, ACS PMSE and ACS POLY. She served on the Board of Directors for MRS in 2003-2005 and as an Executive Committee Member for the Polymer Materials Science and Engineering division of the American Chemical Society.

Bao is a co-founder and on the Board of Directors for C3 Nano and PyrAmes, both are silicon-valley venture funded start-ups. She serves as an advising Partner for NewGen Venture Capital.