

Michael M. Abbott (1938-2006)

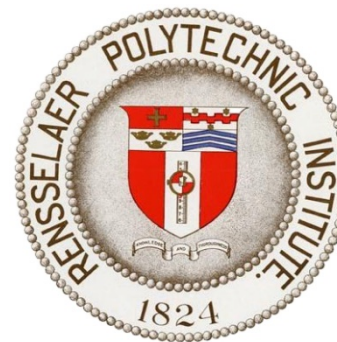


Michael Abbott received his B.S. in Chemical Engineering in 1961, and his Ph.D. in Chemical Engineering in 1965, both from Rensselaer Polytechnic Institute. He worked for four years at Exxon Research and Engineering. He joined Rensselaer as a postdoctoral fellow in 1969, and joined the Chemical Engineering Department as a Professor in 1974, where he worked till 2006.

Prof. Abbott was an internationally recognized expert in chemical thermodynamics. He co-authored four textbooks, including the best-selling chemical engineering text of all time, *Introduction to Chemical Engineering Thermodynamics*, currently in its seventh edition. Abbott had a passion for teaching, and received many awards in recognition of his work as a teacher and mentor, including the Tau Beta Pi Outstanding Engineering Instructor Award (1976), the Trustees' Outstanding Teacher Award, the Western Electric Fund Award from ASEE (1979), the Rensselaer Distinguished Teaching Fellowship (1986-88), and the first Rensselaer Alumni Association Teaching Award in 1994. Beyond academics, Abbott had wide ranging interests including literature, poetry, and music. The Michael M. Abbott Lecture Series hosted each spring in the Chemical Engineering Department honors Abbott's legacy and celebrates his achievements.

Previous Abbott Lecture Awardees

2006	Jefferson W. Tester, Massachusetts Institute of Technology
2007	Pablo Debenedetti, Princeton University
2008	Michael F. Doherty, University of California-Santa Barbara
2009	Zhen-Gang Wang, California Institute of Technology
2010	George "Bud" Homsy, University of British Columbia
2011	Frank S. Bates, University of Minnesota
2012	K. Dane Wittrup, Massachusetts Institute of Technology
2013	Curtis W. Frank, Stanford University
2014	John F. Brady, California Institute of Technology
2015	Jay Keasling, University of California, Berkeley
2016	Gregory Stephanopoulos, Massachusetts Institute of Technology
2017	Paula Hammond, Massachusetts Institute of Technology
2018	Andrew Zydney, Pennsylvania State University
2019	Wilfred Chen, University of Delaware
2020	Cancelled Due to COVID-19



The Howard P. Isermann Department
of
Chemical & Biological Engineering
presents:

Dr. Zhenan Bao

K.K. Lee Professor and Department Chair in the
Department of Chemical Engineering
Courtesy Professor in the Department of Chemistry and
Department of Materials Science and Engineering
Director of Stanford Wearable Electronics Initiative
(eWEAR)
Stanford University

Michael M. Abbott Lecture Series

Wednesday, March 31, 2021

Zhenan Bao



Zhenan Bao is Department Chair and 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. Bao founded the Stanford Wearable Electronics Initiative (eWEAR) in 2016 and serves as the faculty director. Prior to joining Stanford in 2004, she was a Distinguished Member of Technical Staff in Bell Labs, Lucent Technologies from 1995-2004. She

received her Ph.D in Chemistry from the University of Chicago in 1995. She has over 550 refereed publications and over 65 US patents with a Google Scholar H-Index >170.

Bao is a member of the National Academy of Engineering and the National Academy of Inventors. She is a Fellow of MRS, ACS, AAAS, SPIE, ACS PMSE and ACS POLY.

Bao was selected in 2015 as Nature's Ten people who mattered and a "Master of Materials" for her work on artificial electronic skin. She was awarded the inaugural ACS Central Science Disruptor and Innovator Prize in 2020, the Gibbs Medal by the Chicago session of ACS in 2020, the Wilhelm Exner Medal by Austrian Federal Minister of Science 2018, ACS Award on Applied Polymer Science 2017, the L'Oréal-UNESCO For Women in Science Award in the Physical Sciences 2017, the AIChE Andreas Acrivos Award for Professional Progress in Chemical Engineering in 2014, ACS Carl Marvel Creative Polymer Chemistry Award in 2013, ACS Cope Scholar Award in 2011, the Royal Society of Chemistry Beilby Medal and Prize in 2009, the IUPAC Creativity in Applied Polymer Science Prize in 2008.

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 Fusion Venture Capital.

March 31, 2021

12:15 p.m.

<https://rensselaer.webex.com/rensselaer/onstage/g.php?MTID=c66bae1c2bd9ca1cd71132bc15f497b1b>

Password:CBEAbbot

“Skin-Inspired Organic Electronics”

ABSTRACT:

Skin is the body's largest organ, and is responsible for the transduction of a vast amount of information. This conformable, stretchable, self-healable 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. Over the past decade, we have developed materials design concepts to add skin-like functions to organic electronic materials without compromising their electronic properties. These new materials and new devices enabled arrange of new applications in medical devices, robotics and wearable electronics. In this talk, I will discuss several projects related to engineering conductive materials and developing fabrication methods to allow electronics with effective electrical interfaces with biological systems, through tuning their electrical as well as mechanical properties. The end result is a soft electrical interface that has both low interfacial impedance as well as match mechanical properties with biological tissue. Several new concepts, such as “morphing electronics” and “genetically targeted chemical assembly - GTCA” will be presented.



Images of stretchable electronic skin. Image credit: Amir Foudeh, Sihong Liu of Bao Group, Stanford University