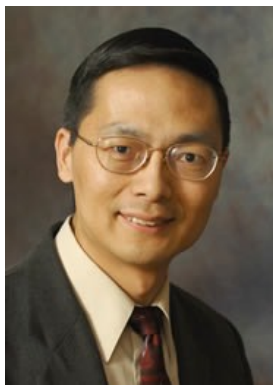


DEPARTMENT OF **CHEMICAL & ENVIRONMENTAL ENGINEERING**



HUIMIN ZHAO
CENTENNIAL ENDOWED CHAIR OF
CHEMICAL AND BIOMOLECULAR ENGINEERING
DEPARTMENT OF CHEMISTRY
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

FRIDAY OCT 12, 2012
9:30 - 10:30 AM
BOURNS A265

SYNTHETIC BIOLOGY: PUTTING SYNTHESIS INTO BIOLOGY

Synthetic biology is the deliberate design of novel biological systems and organisms that draws on principles elucidated by biologists, chemists, physicists, and engineers. It is a rapidly growing area with broad applications in medical, chemical, food, and agricultural industries. In this talk, I will discuss our recent work on the development and application of new synthetic biology tools. Specifically, I will discuss a new tool for rapid construction of large DNA molecules such as pathways and plasmids and its application in (1) discovery, characterization, and engineering of novel natural product biosynthetic pathways for drug discovery and development, and (2) engineering of recombinant yeast strains that can efficiently utilize lignocellulosic materials to produce biofuels and chemicals.

Dr. Huimin Zhao is the Centennial Endowed Chair Professor of chemical and biomolecular engineering, and professor of chemistry, biochemistry, biophysics, and bioengineering at the University of Illinois at Urbana-Champaign (UIUC). He received his B.S. degree in Biology from the University of Science and Technology of China in 1992 and his Ph.D. degree in Chemistry from the California Institute of Technology in 1998 under the guidance of Dr. Frances Arnold. Prior to joining UIUC in 2000, he was a project leader at the Industrial Biotechnology Laboratory of the Dow Chemical Company. He was promoted to full professor in 2008. Dr. Zhao has authored and co-authored 140 research articles and 20 issued and pending patent applications with several being licensed by industry. In addition, he has given plenary, keynote or invited lectures in more than 170 international meetings and institutions. Eight of his former graduate students and postdocs became professors in the US and other countries.

Dr. Zhao received numerous research and teaching awards and honors, including Guggenheim Fellowship (2012), Fellow of the American Association for the Advancement of Science (AAAS) (2010), Fellow of the American Institute of Medical and Biological Engineering (AIMBE) (2009), American Institute of Chemical Engineers (AIChE) Food, Pharmaceutical, and Bioengineering Division Plenary Award Lecturer (2009), the American Chemical Society (ACS) Division of Biochemical Technology Young Investigator Award (2008), Outstanding Overseas Young Chinese Scholars Award (2007), DuPont Young Professor Award (2005), National Science Foundation CAREER Award (2004), Dow Chemical Special Recognition Award (1999), Xerox Award for Faculty Research from UIUC College of Engineering (2005), Petit Scholar from UIUC College of Liberal Arts and Sciences (2006), and University Scholar from UIUC (2007). Dr. Zhao served as a consultant for over 10 companies such as Pfizer, Maxygen, BP, Gevo, and zuChem, and a Scientific Advisory Board member of Gevo and Myriant Technologies. He also is an advisor to the Department of Energy's Biological and Environmental Research program. Dr. Zhao is an Associate Editor of *ACS Catalysis* and an editor of *ACS Synthetic Biology*, *Journal of Industrial Microbiology and Biotechnology*, and *Scientific Reports (Nature)*. His primary research interests are in the development and applications of synthetic biology tools to address society's most daunting challenges in human health and energy, and in the fundamental aspects of enzyme catalysis, cell metabolism, and gene regulation.