2011
William G. Lowrie
Lectures

Dr. Frank S. Bates
Regents Professor and Department Head
Department of Chemical Engineering
and Materials Science
University of Minnesota
Frank S. Bates is a Regents Professor and Head of Chemical Engineering and Materials Science at the University of Minnesota. He received a B.S. in Mathematics from SUNY Albany in 1976, and M.S. and Sc.D. degrees in Chemical Engineering from MIT in 1979 and 1982. Between 1982 and 1989 Bates was a member of the technical staff at AT&T Bell Laboratories, then joined the University of Minnesota as an Associate Professor. He was promoted to Professor in 1991, named a Distinguished McKnight University Professor in 1996, appointed Department Head in 1999, and became a Regents Professor in 2007. Professor Bates conducts research on a range of topics related to polymers, with a particular focus on the thermodynamics and dynamics of block copolymers and blends. In 1988 Bates was named a Distinguished Member of the Technical Staff at Bell Labs. In 1989 he received the John H. Dillon Medal and in 1997 the Polymer Physics Prize, both from the American Physical Society where he is a Fellow. He won the 2004 David Turnbull Lectureship Award from the Materials Research Society, shared the ACS Cooperative Research Award in 2008, and was awarded the 2008 Sustained Research Prize by the Neutron Scattering Society of America. Bates was elected to the US National Academy of Engineering in 2002. In 2005 he was named a fellow of the American Association for the Advancement of Science and in 2010 was elected to the American Academy of Arts and Science.

**LECTURE I:** May 19th, 2011-Smith Laboratory, Room 1005
11:30 am

**Macromolecular Surfactants**
Block copolymers belong to a broad class of amphiphilic compounds that includes soaps, lipids and nonionic surfactants. These macromolecules assemble into micelles with molecular dimensions on the order of 5 to 50 nm in size when mixed with excess solvent that preferentially solvates one block type. This presentation explores several aspects of block copolymer synthesis and micelle formation, including the fundamental thermodynamic and kinetic factors that control particle shape and dynamics. A host of experimental techniques including small-angle x-ray and neutron scattering (SAXS and SANS), cryogenic electron microscopy and rheological techniques have been employed in characterizing disordered (fluid) and ordered (soft solid) structures and the associated viscoelastic properties of block copolymers dispersed in aqueous and organic media. Similarities and differences between conventional and macromolecular surfactants will be highlighted along with several illuminating practical applications.

**LECTURE II:** May 20th, 2011-Physics Research Building, Room 1080
10:30 am

**Reflections on Our Discipline: A Tribute to Neal Amundson**
With the passing of Neal Amundson on February 16, 2011 the world lost one of the most visionary academics of the modern era. Neal is remembered as an architect of modern chemical engineering, one who guided the field beyond the days of glorified plumbing to a sophisticated and mathematically demanding engineering discipline. As head of "Amundson's department" for the past dozen years I have grappled with the challenge of shaping and redefining chemical engineering and materials science at the University of Minnesota. Fortunately, the basic principles that guided Amundson through twenty-five brilliant years as "Chief" at Minnesota remain operative today. I will share some of his wisdom and offer a few of my own thoughts regarding our academic enterprise and the pursuit of fundamental knowledge in the face of technological progress.
William G. Lowrie Lectureship
Honors Banquet

6:00-6:30 Reception
6:30 Welcome - Dr. Stuart L. Cooper, Chair
6:40 Buffet Dinner

LOWRIE LECTURESHIP AWARD PRESENTATION
Awardee: Frank S. Bates

SPECIAL RECOGNITION
Kevin Kauffman: Received a Pelotonia Undergraduate Fellowship
Elif Miskioglu: Selected to receive an NSF Graduate Research Fellowship Program (GRFP) Fellowship
Shreyas Rao: Received a Pelotonia Graduate Fellowship
Kevin Yang: Selected to receive an NSF Graduate Research Fellowship

AMERICAN INSTITUTE OF CHEMISTS FOUNDATION AWARDS
AIC Outstanding Undergraduate Student Award
Awardee: William Murch
AIC Outstanding Graduate Student Award
Awardee: Shreyas Rao
AIC Outstanding Postdoctoral Award
Awardee: Pouyan Boukany

AICHE STUDENT AWARDS
AICHE Central Ohio Section Outstanding Student Award
Awardee: Kelly Ramos
Donald F. Othmer AICHE Sophomore Academic Excellence Award
Awardee: Kristi Olesik

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING AWARDS
Co-Op Award
Awardee: Cameron Bodenschutz

Outstanding Undergraduate Award for Research Excellence
Awardee: Dan Griffin
Awardee: Mengchuan Li
Awardee: Hyun Tae Sohn
Awardee: Yuhao Sun
Awardee: Daniel Valco
Awardee: Qi Wang

Outstanding Graduate Award for Academic Achievement
Awardee: Hyunkyu Choi
Awardee: Jake Elmer
Awardee: Daniel Knight
Awardee: Congcong Lu
Awardee: Kelley Mullick
Awardee: Kartik Ramasubramanian
Awardee: Haifeng Shi
Awardee: Shweta Singh
Awardee: Deepak Srihar
Awardee: Ru Zang

Outstanding Post-Doc Award for Research Excellence
Awardee: Yun Wu
Awardee: Jingbo Zhao

AICHE STUDENT CHAPTER OFFICERS
President - Chris Schneider
Vice-President - Chris Wielgus
Treasurer - Mike Nechay
Co-Philanthropy Chair - Kunal Parikh
Co-Philanthropy Chair - Craig Hoying
Communication Chair - Janee McNeil
Social Chair - Will Murch
Historian- Binbin Wu
ChemE Car President – Chris Wielgus
ChemE Car Treasurer – Jesiah King
ChemE Car Safety Coordinator – Frank Sweterlitsch
Fuel Cell Team Leader – Tom Mascolino
Timing Mechanism Team Leader – Mike Nechay
Chassis Team Leader – Alex Vermejian

CEGC OFFICERS
Academic Officer – Yinming Du
Facilities Officer – Deepika Singh
Recruitment Officer – Alex Roth
Business Officer – Erin Landers
Social Officer – Andrew Tong

CLOSING REMARKS – Stuart L. Cooper
The William G. Lowrie Lectureship was established in the Department of Chemical Engineering at The Ohio State University on October 1, 1995, to honor William G. Lowrie, a distinguished alumnus. The lectureship is awarded once each year to an individual who has made outstanding contributions to fundamental or applied research in the field of chemical engineering.

-1996 Lecturer -
  John F. Davidson
  University of Cambridge
-1997 Lecturer -
  William R. Schowalter
  University of Illinois at Urbana-Champaign
-1998 Lecturer -
  James Wei
  Princeton University
-1999 Lecturer -
  Judson King
  University of California, Berkeley
-2000 Lecturer -
  Robert Langer
  MIT
-2001 Lecturer -
  Roy Jackson
  Princeton University
-2002 Lecturer -
  Alexis T. Bell
  University of California, Berkeley
-2004 Lecturer -
  John H. Seinfeld
  California Institute of Technology
-2005 Lecturer -
  Charles A. Eckert
  Georgia Tech
-2006 Lecturer -
  Alice P. Gast
  Massachusetts Institute of Technology
-2007 Lecturer -
  Greg Stephanopoulos
  Massachusetts Institute of Technology
-2008 Lecturer -
  Carol K. Hall
  North Carolina State University
-2009 Lecturer -
  Gabor A. Somorjai
  University of California, Berkeley
-2010 Lecturer -
  Rakesh K. Jain
  Harvard Medical School
  Massachusetts General Hospital