

*You are  
cordially invited  
to attend*

## The 41st Annual

### Harry G. Fair Memorial Lecture in Chemical Engineering 2015

Thursday, February 12, 2015  
Seminar – 2:00 p.m.  
Room M-204  
Sarkeys Energy Center  
100 East Boyd  
University of Oklahoma  
Norman, Oklahoma

Coffee and refreshments will  
be served.

Accommodations on the basis of disabilities are  
available by calling (405) 325-5811.

The University of Oklahoma is an equal  
opportunity institution. 1/15

This publication was produced in a quantity of 500  
at no cost to the taxpayers of the State of Oklahoma.

## Harry G. Fair Memorial Lecturers

- 2015 Antonios G. Mikos, Rice University
- 2014 Mark E. Davis, California Institute of Technology
- 2013 Alexis T. Bell, University of California, Berkeley
- 2012 Charles Zukoski, University of Illinois at Urbana-Champaign
- 2011 Peter C. Stair, Northwestern University
- 2010 Juan J. de Pablo, University of Wisconsin-Madison
- 2008 Donald R. Paul, University of Texas at Austin
- 2007 David Mooney, Harvard University
- 2007 John Prausnitz, University of California, Berkeley
- 2006 George Georgiou, University of Texas at Austin
- 2005 James A. Dumesic, University of Wisconsin
- 2004 Robert C. Armstrong, Massachusetts Institute of Technology
- 2003 Nicholas Peppas, University of Texas at Austin
- 2002 Richard C. Alkire, University of Illinois
- 2001 Ralph T. Yang, University of Michigan
- 2000 Enrique Iglesia, University of California, Berkeley
- 1999 George Stephanopoulos, Massachusetts Institute of Technology
- 1998 Stuart L. Cooper, University of Delaware
- 1997 Keith E. Gubbins, Cornell University
- 1996 H. Scott Fogler, University of Michigan
- 1995 Gary L. Haller, Yale University
- 1994 Christopher W. Macosko, University of Minnesota
- 1993 Larry V. McIntire, Rice University
- 1992 Dan Luss, University of Houston
- 1991 E. N. Lightfoot, University of Wisconsin
- 1990 George A. Samara, Sandia National Labs
- 1989 James Wei, Massachusetts Institute of Technology
- 1988 C. Judson King, University of California, Berkeley
- 1987 Eli Ruckenstein, SUNY Buffalo
- 1986 Stuart W. Churchill, University of Pennsylvania
- 1985 John M. Campbell, John M. Campbell & Co.
- 1984 Richard G. Askew, Phillips Chemical Co.
- 1983 B. H. Sellers, Sellers Chemical Co.
- 1982 Lynn T. Reed, Warren Petroleum Co.
- 1981 Robert S. Purgason, Perry Gas Processors
- 1980 A. B. Slaybaugh, Conoco Inc.
- 1979 Charles R. Perry, Perry Gas Cos.
- 1978 Raymond W. Lowe, E. I. DuPont de Nemours
- 1977 Laurance S. Reid, Ball-Reid Engineers Inc.
- 1976 Harry L. Blomquist Jr., Coastal States Gas Co.
- 1975 Stanley Learned, Phillips Petroleum Co.

School of Chemical, Biological and Materials Engineering  
College of Engineering  
University of Oklahoma  
Sarkeys Energy Center  
100 East Boyd, Room T-301  
Norman, Oklahoma 73019-1004  
405-325-5811

## The 41st Annual

### Harry G. Fair Memorial Lecture in Chemical Engineering 2015



**Antonios G. Mikos**

Bioengineering  
Rice University  
Houston, Texas, USA

*Biomaterials For  
Tissue Engineering*



## Harry G. Fair

Each year, a special lecture is given in memory of Harry G. Fair, an outstanding OU alumnus. Fair was born in Okmulgee, Oklahoma on June 3, 1916, and earned his bachelor of science degree in chemical engineering in 1939. He joined Phillips Petroleum Co. in 1939 and worked his way up to vice president for supply and transportation, with responsibility for worldwide exchange of crude oil and all transportation facilities. In 1966, Fair joined M.W. Kellogg Co. as executive vice president in charge of all engineering activities. He was named executive vice president of Coastal States Gas Corp. in 1971, a post he held until his death on July 27, 1974. A member of a number of professional societies and a licensed professional engineer, Fair was active in service to society and his alma mater.

This lecture is made possible by the Harry G. Fair Memorial Fund established by his widow, Jane Swift Fair. Arrangements for the lecture are made by the School of Chemical, Biological and Materials Engineering in OU's College of Engineering.

## *Biomaterials For Tissue Engineering*

### Antonios G. Mikos

Bioengineering  
Rice University  
Houston, Texas, USA

Biomaterial-based strategies for tissue engineering span a vast spectrum from the production of scaffolds tailored with appropriate mechanical properties and degradation kinetics to serve transiently as a bridge to tissue formation to the leverage of biomaterials for the controlled delivery of biological signals to regenerate tissue in specific sites in the body. For example, our laboratory has developed a variety of biodegradable polymers for the controlled delivery of bioactive agents and/or stem cell populations to promote regeneration of tissues such as bone and cartilage. We have also applied engineered culture of cell populations on three-dimensional scaffolds toward the development of biologically active hybrid scaffold/extracellular matrix constructs for regenerative medicine applications as well as testing of anticancer drugs. This talk will present recent examples of biomaterial-based approaches for the development of tissue engineering technologies to meet clinical needs.

## Antonios G. Mikos Biography

Antonios G. Mikos is Louis Calder Professor of Bioengineering and Chemical and Biomolecular Engineering at Rice University. He is Director of J.W. Cox Laboratory for Biomedical Engineering and Director of Center for Excellence in Tissue Engineering at Rice University. He received his Dipl.Eng. (1983) from Aristotle University of Thessaloniki, Greece, and his Ph.D. (1988) from Purdue University, both in Chemical Engineering. He was a postdoctoral researcher at M.I.T. and Harvard before joining the Rice Faculty in 1992.

Professor Mikos' research focuses on the synthesis, processing, and evaluation of new biomaterials for use as tissue engineering scaffolds, as carriers for controlled drug delivery, and as non-viral vectors for gene therapy. His work has led to the development of novel orthopaedic, dental, cardiovascular, neurologic, and ophthalmologic biomaterials. He is author of over 530 publications and 27 patents. He is editor of 15 books and author of a textbook on Biomaterials. He has an h-index of 115.

Professor Mikos is Member of the National Academy of Engineering and of the Institute of Medicine of the National Academies. He has received many awards including Founders Award and Clemson Award of the Society For Biomaterials, the Robert A. Pritzker Distinguished Lecturer Award of the Biomedical Engineering Society, Alpha Chi Sigma Award and Food, Pharmaceutical and Bioengineering Award of the AIChE, and Marshall R. Urist Award of the Orthopedic Research Society.

He has mentored 54 doctoral students, as well as 37 postdoctoral fellows. He is organizer of the continuing education course Advances in Tissue Engineering offered annually at Rice University since 1993. Mikos is a founding editor and editor-in-chief of the journals Tissue Engineering Part A, Tissue Engineering Part B: Reviews, and Tissue Engineering Part C: Methods and a member of the editorial boards of numerous journals. He is Past-President of the Tissue Engineering and Regenerative Medicine International Society-Americas and the Society for Biomaterials.