

*You are
cordially invited
to attend*

The 33rd Annual

Harry G. Fair

Memorial Lecture in
Chemical Engineering

Thursday, April 5, 2007
Seminar – 3:00 P.M.

M-204 Sarkeys Energy Center
100 East Boyd
University of Oklahoma
Norman, Oklahoma

Coffee and refreshments will
be served prior to the lecture.

Accommodations on the basis of disabilities are
available by calling (405) 325-5812.

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Harry G. Fair Memorial Lecturers

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 Learmed, Phillips Petroleum Co.

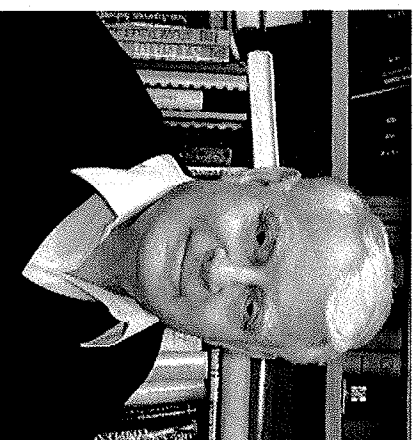
School of Chemical, Biological and Materials Engineering
College of Engineering
University of Oklahoma
Sarkeys Energy Center
100 East Boyd, Room T-335
Norman, Oklahoma 73019-1004



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Chemical Engineering
2007



John Prausnitz

Chemical Engineering Department
University of California, Berkeley
and Chemical Sciences Division
Lawrence Berkeley National Laboratory
Berkeley, California 94720

*Three Frontiers in the
Thermodynamics of
Protein Solutions*

chemical, biological & materials
university of oklahoma college of 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.

Three Frontiers in the Thermodynamics of Protein Solutions

John Prausnitz

Chemical Engineering Department
University of California, Berkeley
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Berkeley, California 94720

Three examples illustrate the versatility and usefulness of biothermodynamics. The first example concerns calculation of a phase diagram for aqueous lysozyme with a new potential of mean force that takes the Hofmeister effect into account; such calculations may be useful for design of a separation process where addition of a salt to an aqueous protein mixture precipitates a target protein. The second example concerns thermodynamic studies to elucidate the effect of an organic cosolvent on the mechanism of crystallizing aqueous insulin. The final example concerns a thermodynamic contribution to mitigating the AIDS epidemic; it indicates how isothermal-titration-calorimetry studies are helpful for choosing an optimum inhibitor that is effective not only for the wild-type HIV protease but also for at least some of its mutants.

John Prausnitz biography

Professor Prausnitz (BChE Cornell, PhD Princeton) is Professor of Chemical Engineering at the University of California, Berkeley. He has published nearly 700 research articles in refereed journals, one textbook "Molecular Thermodynamics of Fluid Phase Equilibria" (Third edition 1999), one reference book "Properties of Gases and Liquids" (Fifth edition 2000) and three monographs, mostly concerned with thermodynamic properties of fluids and fluid mixtures for application in chemical process design. His research work covers properties of hydrocarbons, polymers and gels, liquefied gases at low temperatures, aqueous solutions of proteins, solutions of electrolytes, ionic liquids, adsorption of liquids on solid surfaces, etc. His research comprises theoretical studies, molecular simulations and extensive experimental work using a broad variety of experimental techniques such as IR and UV spectroscopy, osmometry, ebullimetry, fluorimetry, voltammetry, chromatography, calorimetry, differential scanning calorimetry, thermogravimetric analysis, etc. Prof. Prausnitz has served as consultant to several research and industrial organizations including Union Carbide Corp (now Dow Chemical Co), Air Products and Chemicals, Fluor Corporation and Johnson & Johnson Medical Products Corp. He is a member of the National Academy of Sciences, the National Academy of Engineering and the American Academy of Arts and Sciences. In addition to numerous awards from the American Chemical Society, the American Institute of Chemical Engineers and other professional societies, he has received four honorary doctor's degrees. In 2005, he received the National Medal of Science from President Bush.