

*You are
cordially invited
to attend*

The 33rd Annual

Harry G. Fair Memorial Lecture in Chemical Engineering

Tuesday, 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

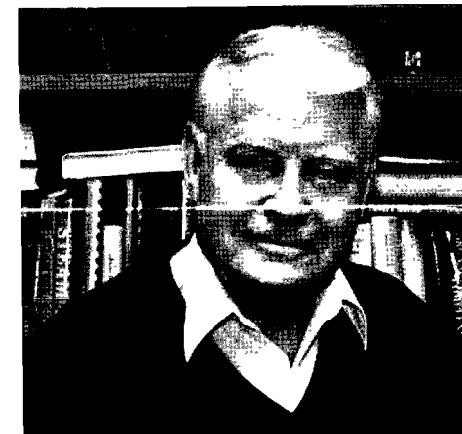
2007	John Prausnitz, University of California, Berkeley
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College of Engineering
University of Oklahoma
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John Prausnitz

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Berkeley, California 94720

Three Frontiers in the Thermodynamics of Protein Solutions



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

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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, ebulliometry, 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.