



HARRY G. FAIR

Each year, a special lecture is given in memory of Harry G. Fair, an outstanding OU alumnus. Harry G. Fair was born in Okmulgee, Oklahoma, on June 3, 1916. He received his B.S. in Chemical Engineering in 1939. He joined Phillips Petroleum Company 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, he joined the M.W. Kellogg Company as Executive Vice President, in charge of all engineering activities and became Executive Vice President of Coastal States Gas Corporation from 1971 until the time of his death on July 27, 1974. Harry G. Fair was active in service to society and to his alma mater. He was a member of a number of professional societies and was a licensed professional engineer.

This lecture is made possible by the Harry G. Fair Memorial Fund contributed by his widow, Jane Swift Fair. Arrangements are made by the School of Chemical Engineering and Materials Science.



Ralph T. Yang

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New Adsorbents for Gas Separation by Weak Chemical Bonds

Based on principles of chemical complexation, new sorbents are made for the following gas separations: olefin-paraffin separations, olefin-diene separations, aromatics/aliphatics separations, and air (O_2/N_2) separation. For olefin-paraffin and diene separations, sorbents with highly dispersed Ag^+ and Cu^+ provide high selectivities and capacities for olefins and dienes. Dispersed Cu^+ and Pd^{2+} are selective for aromatics over aliphatics. For air separations, we are making two types of sorbents: N_2 -selective and O_2 -selective sorbents. Ag^+ -containing zeolites are promising for O_2 complexation. Full structural characterization of Ag^+ -containing LSX (low-silica X zeolite, Si/Al=1) zeolites will be given. Molecular orbital calculations are performed to obtain an understanding of the adsorption bonds and also to guide the design of the sorbents.

Ralph T. Yang

Degrees: PhD (ChE) Yale University (1971), MS (ChE) Yale University (1968), BS (ChE) National Taiwan Univ. (1964).

Memberships, Professional Activities and Honors: AIChE (Dir., Sep. Div., 1992-1995; Fellow, 1994; Awards Comm., 1996-2001) 1991 Wm. H. Walker Award for "Excellence in Contributions to Chemical Engineering Literature", 1996 Inst. Award for Excellence in Industrial Gases Tech.; 1997 Clarence Gerhold Award (Sep. Div. Award) • Amer. Chemical Soc. • Amer. Carbon Soc. (Adv. Bd., 1985-1991); 1999 SGL Carbon Award for "Most Significant Overall Contributions to Science or Technology of Carbon Materials." • Amer. Soc. for Engr. Educ. • International Adsorption Soc. (Dir., 1998-2004) • *Adsorption* - Jour. of IAS (Adv. Bd. 1993-pres.) • *Adsorption Sci. and Tech.* (Adv. Bd., 1986-pres.) • *Industrial & Engr. Chem. Res.* (Adv. Bd., 1991-1993) • *Sep. & Purification Methods* (Adv. Bd., 1997-pres.) • *Applied Catalysis B, Environmental* (Ed. Bd., 2000-pres.) • Imperial College Press Chem. Engr. Series, Series Ed. (1996-pres.)

Professional Experience: Univ. of Michigan, Dept. of Chem. Engr., Prof. and Chairman (1995-present) • State Univ. of New York at Buffalo, Dept. of Chem. Engr., Praxair Prof. of Chem. Engr. (1993-1995); Chairman (1989-1995); Prof. (1982-1993); Assoc. Prof. (1978-1982) • National Science Foundation, Washington, D.C., Prog. Dir., Sep. and Purification Processes, Chemical, Biochemical and Thermal Engr. Div. (1987-1988) • Brookhaven Nat. Lab., Upton, NY, Chemical Engineer, and Group Leader, Fossil Energy Sci. Group (1974-1978) • Aluminum Co. of Amer., Alcoa Center, PA, Scientist (1973-1974), Div. of Phys. Chem. • Argonne Nat. Lab., Argonne, IL, Res. Assoc. (1972-1973) • New York Univ., University Heights, NY, Res. Assoc. (1971-1972), Dept. of Chemistry.

Publications: Books: Gas Separation by Adsorption Processes, R. T. Yang, Butterworth, Boston, 1987. (Translated into Russian, Chinese and Korean). Paperback Ed., 1997 • New Directions in Sorption Technology, G.E. Keller, II and R.T. Yang, Co-Eds., Butterworths, Boston (1989) **Refereed Journal Articles:** 289 journal publications. **Patents:** 14 U.S. Patents.

YOU ARE
CORDIALLY INVITED
TO ATTEND

THE 27TH ANNUAL

Harry G. Fair Memorial Lecture

IN CHEMICAL ENGINEERING
AND MATERIALS SCIENCE

April 19, 2001,
3:30 P.M.

THE LECTURE WILL BE GIVEN
ON CAMPUS,
IN SARKEYS ENERGY CENTER,
ROOM M-204.

ACCOMMODATIONS FOR SPECIAL NEEDS ACCESS
MAY BE ARRANGED BY CALLING 325-4393.

COFFEE AND REFRESHMENTS WILL BE SERVED

Harry G. Fair Memorial Lecturers

- 2001 Ralph T. Yang, University of Michigan
- 2000 Enrique Iglesia, Univ. of California, Berkeley
- 1999 George Stephanopoulos, M.I.T.
- 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, Univ. 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, M.I.T.
- 1988 C. Judson King, Univ. of Calif., Berkeley
- 1987 Eli Ruckenstein, SUNY, Buffalo
- 1986 Stuart W. Churchill, Univ. 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 Companies
- 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.

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THE UNIVERSITY OF OKLAHOMA
COLLEGE OF ENGINEERING

THE 27TH ANNUAL

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in



CHEMICAL ENGINEERING

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