NEWSLETTER

Oklahoma Section
American Chemical Society

Volume 13 Number 2 March 16, 2007

Making Things, Changing Things

Thursday – April 12, 2007
7:00 p.m. Little Theatre
Oklahoma State University Student Union
Stillwater OK
Note: Dr. Hoffmann will give a 1st talk
3:00 p.m. Noble Research Center Room 106
See page 2 for this talk title & outline

Dr. Roald Hoffmann

Department of Chemistry & Chemical Biology
Cornell University
Ithaca NY 14853-1301

Chemistry, poised between the physical and biological universes, doesn't deal with the infinitely small or large. It is very much on the human scale and from that derives its great interest and its problems. In this generously illuminated lecture several views of chemistry will be presented. First of all, chemistry is, as it has always been, the art, craft, business of substances and their transformations. It is now also the science of molecules, both simple and complex – chemists always think simultaneously of macroscopic substances and microscopic molecules changing. One must also look at people's perception of chemistry, in terms of its benefits, yes, but also in terms of its risks. Indeed, there is no way that a human activity so closely tied to change can be viewed without passion by people. This deeply democratizing science is full of tensions, which will be explored in this lecture. As will the strong element of creation or synthesis in chemistry, which brings chemistry close to the arts.

[Reservation Information on Page 2]

Schedule:

3:00 PM First Talk **Research Center**
Oklahoma State University

5:00 – 6:30 PM Dinner: **Hideaway Pizza in Stillwater**

7:00 PM Second Talk
Little Theater
OSU Student Union

Menu: One topping pizza, salad, and soft drink. If the buffet is not to your liking, order from the regular menu. Alcoholic drinks through individual purchases.

Cost: $7.75/person

Deadline: Tuesday, 04/10/07; 10:00 a.m. Barry Lavine 405.744.5945 bklab@okstate.edu

The Chemical Imagination at Work in Very Tight Places
3:00 PM Noble Research Center
Room 106 OSU-Stillwater

Diamond anvil cell and shock-wave technologies now permit the study of matter under multimegabar [several hundreds Gpa] pressures. The properties of matter in this pressure regime differ drastically from those known at 1 atmosphere. Just how different chemistry is at high pressure and the role that a chemical intuition for bonding and structure can have in understanding matter at high pressures will be explored in this lecture.I will discuss in detail an overlapping hierarchy of responses to increased density, consisting of [a] squeezing out van der Waals space [for molecular crystals]; [b] increasing coordination; [c] decreasing the bond length of covalent bonds and the size of anions; and [d] an extreme regime of electrons moving off atoms and new modes of correlation. Examples of the startling chemistry and physics that emerge under such extreme conditions will alternate in this account with qualitative chemical ideas about the bonding involved.

Dr. Roald Hoffmann

Roald Hoffmann was born in Zloczow, Poland, in 1937. Having survived the Nazi occupation, he arrived in the U.S. in 1949, after several years of post-war wandering in Europe. He graduated from Stuyvesant High School, Columbia University, and proceeded to take his Ph.D. in 1962, at Harvard University, working with W. N. Lipscomb and Martin Gouterman. Dr. Hoffmann stayed on at Harvard University from 1962-1965, as a Junior Fellow in the Society of Fellows. Since 1965, he has been at Cornell University, where he is now the Frank H. T. Rhodes Professor of Humane Letters and Professor of Chemistry.

Professor Hoffmann is a member of the National Academy of Sciences, The American Academy of Arts and Sciences, and the American Philosophical Society. He has been elected a Foreign Member of the Royal Society, the Indian National Science Academy, the Royal Swedish Academy of Sciences, the Finnish Society of Sciences and Letters, the Russian Academy of Sciences, the Nordrhein-Westfällische Academy of

Sciences, and the Leopoldina. He has received numerous honors, including over twenty-five honorary degrees. He is the only person ever to have received the American Chemical Society's awards in three different specific subfields of chemistry — the A. C. Cope Award in Organic Chemistry, the Award in Inorganic Chemistry, and the Pimentel Award in Chemical Education. As well as two other ACS awards. In 1981, he shared the Nobel Prize in Chemistry with Kenichi Fukui.

"Applied theoretical chemistry" is the way Roald Hoffmann likes to characterize the particular blend of computations stimulated by experiment and the construction of generalized models, of frameworks for understanding, that is his contribution to chemistry. In more than 450 scientific articles and two books he has taught the chemical community new and useful ways to look at the geometry and reactivity of molecules, from organic through inorganic to infinitely extended structures.

Dr. Hoffmann participated in the production of a television course about chemistry. "The World of Chemistry" is a series of 26 half-hour programs developed at the University of Maryland and produced by Richard Thomas. Dr. Hoffmann is the Presenter for the series, which has been aired on PBS beginning in 1990, and has been shown widely abroad.

Roald Hoffmann has also written popular and scholarly articles on science and other subjects. His poetry has appeared in various literary magazines. Two collections, entitled The Metamict State (1987) and Gaps and Verges (1990), were published by the University of Florida Press; Memory Effects, was published in 1999 by the Calhoun Press of Columbia College, Chicago. At the end of 2002 two poetry collections were published by Roald Hoffmann, “Soliton,” by Truman State University Press, and volume of selected poems translated into Spanish, “Catalísta.”

In 1993 the Smithsonian Institution Press published Chemistry Imagined. A unique art/science/literature collaboration of Roald Hoffmann with artist Vivian Torrence, Chemistry Imagined reveals the creative and humanistic sparks of chemistry. A series of thirty collages by Torrence paired with short essays, personal commentary, and poems by Hoffmann evokes the magic of the molecular science. The book will be translated into Spanish. In 1995, Columbia University Press published Hoffmann's The Same and Not the Same. This book points to the dualities that lie under the surface of chemistry, and that endow this seemingly quiet central science with tension. There are German, Korean, Spanish, Portuguese (in press) and two Chinese translations of this book. In 1997, W.H. Freeman published Old Wine, New Flasks; Reflections on Science and Jewish Tradition, by Roald Hoffmann and Shira Leibowitz Schmidt. This book looks in a nonconfrontational (and witty) way at how science and religion, dealing with the mundane, are both led to eternal and important questions of authority, purity, identity, the natural and the unnatural. Spanish and Italian translations of this book will appear.

A play, Oxygen, by Carl Djerassi and Roald Hoffmann premiered in the U.S. at the San Diego Repertory Theatre in 2001, and had productions in London, East Lansing, MI, Madison, WI, Columbus, OH, Germany, Korea, Japan and Toronto. “Oxygen” has been translated into many languages. A second play by Roald Hoffmann, Should’ve, has had a workshop production in Edmonton, Alberta, in 2006.

Future 2007 Meeting Dates/Locations:

April 23, 2007	UCO	Malcolm D. Prouty
May 15, 2007	TBA	Local Speaker
September 15 or 22, 2007	OBU	Sherry Marshall
October 8, 2007	SEOSU	Eugene Stevens
November xx, 2007	OSU	Oklahoma Chemist of the Year Award

April 2007 OSU Meeting

Thursday 12 April, 2007
Oklahoma State University
Stillwater OK 74078

Speaker: Dr. Roald Hoffmann – Cornell University

3:00 PM Noble Research Center
Room 106 OSU-Stillwater
The Chemical Imagination at Work in Very Tight Places

7:00 PM Little Theatre
Oklahoma State University Student Union
Stillwater OK
Making Things, Changing Things

Oklahoma Section ACS
Southwestern Oklahoma
State University
100 Campus Drive
Weatherford OK 73096-3098

Nonprofit Organization
U.S. Postage Paid
Weatherford OK
Permit No. 1092