Friend E. Clark Lecture Series

The Friend E. Clark Lecture Series is co-sponsored by the Tau Chapter of Phi Lambda Upsilon Chemistry Honorary and the C. Eugene Bennett Department of Chemistry of West Virginia University and was initiated in 1950. A list of the past speakers for this Lecture Series is tabulated below and includes a number of Nobel Laureates and prominent research scientists. The original purpose of this activity, as proposed by Charles Wheeler, then President of Tau Chapter of PLU in 1948, was to bring an outstanding research scientist annually to campus for two days to share his or her research interests and accomplishments with the students and faculty at the University. The department did not have a formal departmental seminar program until 1969. Wheeler's idea is now a tradition.

The past Clark Lecturers include W. Conard Fernelius (Penn State), C. C. Price (Notre Dame), Ludwig F. Audrieth (Illinois), Herbert C. Brown (Purdue), Peter J. W. Debye (Cornell), Joel H. Hildebrand (California-Berkeley), N. Howell Furman (Princeton), H. G. Drickhamer (Illinois), John C. Bailar, Jr. (Illinois), Louis F. Fieser (Harvard), Max Lauffer (Pittsburgh), Robert A. Alberty (Wisconsin-Madison), Eugene G. Rochow (Harvard), Richard S. Brokaw (NASA), Daryl Busch (Ohio State), Ernest L. Eliel (Notre Dame), Charles N. Reilley (North Carolina-Chapel Hill), Edward C. Lingafelter (Washington), Ronald J. Gillespie (McMaster), Roald Hoffmann (Cornell), L. B. Rogers (Purdue), Harry B. Gray (Cal Tech), W. Albert Noyes (Texas), Frank H. Westheimer (Harvard), Herbert A. Laitinen (Florida), Fred Basolo (Northwestern), Bruce Merrifield (Rockefeller), Orville Chapman (Iowa State), Dudley Herschbach (Harvard), Theodore L. Brown (Illinois), Velmer A. Fassel (Iowa State), Nicholas J. Turro (Columbia), Richard N. Zare (Stanford), F. Albert Cotton (Texas A&M), Allen J. Bard (Texas), John D. Roberts (Cal Tech), John Ross (Stanford), R. Graham Cooks (Purdue), Richard H. Holm (Harvard), Barry Trost (Stanford), and Jerome and Isabella Karle (Naval Research Laboratory), James Jorgenson (North Carolina - Chapel Hill), Louis S. Hegedus (Colorado State University), Maurice S. Brookhart (North Carolina - Chapel Hill).

45th Friend E. Clark Lecture Series

Phi Lambda Upsilon Chemistry Honorary
and the
C. Eugene Bennett Department of Chemistry
West Virginia University

presented by

Professor Eric J. Heller

Department of Chemistry, Physics
Harvard University

"Making Waves: From Quantum Corrals to Concert Halls"
March 4, 2004, 5:00 p.m., Clark Hall 208

and

"Quantum Scattering in Small Devices"
March 5, 2004, 4:30 p.m., Clark Hall 208

Professor Eric J. Heller

Eric Heller was born in Washington, D.C in 1946. He received his B.S at the University of Minnesota in 1968. He entered graduate school at Harvard University, where he was conferred a Ph.D. in Chemical Physics in 1973. From 1973 to 1975, he held a Postdoctoral Research Associate position at the University of Chicago. Dr. Heller joined the faculty of UCLA as an Assistant Professor in 1975. He was promoted to Associate Professor in 1978 and Professor in 1981. From 1982 to 1984, he served as a staff scientist at Los Alamos National Laboratory. Dr. Heller accepted a Professor faculty position at the University of Washington in 1984. He returned to Harvard in 1993 as a Professor of Physics and the director of Institute for Theoretical Atomic, Molecular and Optical Physics. In 1998, Dr. Heller was promoted to Professor of Physics and Professor of Chemistry. Among the honors he has received are: the Camille and Henry Dreyfus Teacher-Scholar Award from 1977 to 1982, the Herbert N. McCoy and the Glenn T. Seaborg Award in 1981, the National Science Foundation's Special Creativity Grant in 1987, the Guelph Distinguished Lecturer Award in 1996, and the Joseph O. Hirschfelder Lecturer Award in 2003. Dr. Heller is a member of the American Chemical Society, the American Academy of Arts and Sciences, the American Association for the Advancement of Science, and the International Academy of Quantum Molecular Sciences. He was elected Alexander von Humboldt Senior Fellow in 1985.

"Making Waves: From Quantum Corrals to Concert Halls"

Wave propagation and reflection affects the design and performance of many things, from concert halls to electronic devices. This talk will weave a path from the Greeks through Chaldni, Sabine, Berry, Eagle and very recent quantum corrals and branched flow of electrons in low amplitude random potential fields, as found in two degree of freedom electron gasses.

"Quantum Scattering in Small Devices"

We discuss new results and some novel techniques for understanding electron flow in quantum point contacts and quantum dots as viewed from quantum scattering theory.

Important Contributions

Dr. Heller's developments in time dependent quantum mechanics have been instrumental in calculating and interpreting molecular spectra. His theories have allowed detailed study of the dynamics of molecules following excitation. Additional findings have also paved the way for the interpretation of femtosecond pulse experiments. His wavepacket trajectory methods have simplified quantum dynamics.