

## Lecture abstract

From environmental and economic standpoints, molecular oxygen represents the ideal oxidant for chemical transformations. It is readily available, inexpensive (particularly if used without separation from air) and environmentally benign. However, more expensive and/or hazardous oxidants are often employed in homogeneous metal-catalyzed oxidation reactions. An insufficient knowledge of how transition metal complexes react with molecular oxygen has inhibited catalyst design of effective aerobic systems. Kinetic and mechanistic studies of the reactions of oxygen with various late metal complexes, including metal alkyls and hydrides, will be presented along with our nascent mechanistic understanding of these reactions. The generality of these aerobic oxidation reactions and the potential for incorporation into hydrocarbon functionalization strategies will be discussed.

Questions and comments about the Dawson Lecture can be directed to

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*chem.as.uky.edu*

## The 24<sup>th</sup> Annual Lyle Ramsay Dawson Lecture

*Established in memory of Lyle Ramsay Dawson  
Distinguished Professor and Former Head of  
the Department of Chemistry*

## Molecular Oxygen as a Reagent in Late Transition Metal Organometallic Chemistry

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Dr. Karen Goldberg  
Vagelos Professor of Energy Research  
University of Pennsylvania

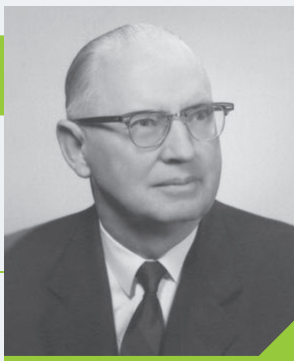
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Friday, November 5, 2021 | 3-4:00 PM

WT Young Library:  
UK Athletics Association Auditorium

*\*Reception to immediately follow.*





## LYLE RAMSAY DAWSON

Lyle Ramsay Dawson was a native of Illinois and received his undergraduate degree from the University of Illinois in 1932. He received his Ph.D. degree in 1935 from the University of Iowa.

Dr. Dawson served in several academic positions in Illinois, Wisconsin, Nebraska and

Louisiana and also worked on the Manhattan Project as a Research Chemist and Group Leader in the Metallurgical Laboratory at the University of Chicago. In 1946, he was awarded the War Department's Certificate of Merit and a U.S. Patent for his efforts on the Manhattan Project, which led to the discovery of a fundamental process for the extraction and purification of the elements plutonium and neptunium. He was a member of the committee that organized the Oak Ridge Institute of Nuclear Studies and was a council member of the Institute.

Professor Dawson came to the University of Kentucky in 1945 as Head of the Department of Chemistry. He provided key leadership in initiating and building the doctoral program in chemistry at the university. For example, in his first decade in the department, he individually obtained the major portion of extramural research support. During his twenty-five years with the department, he held contracts for fundamental chemical research with the U.S. Army, the National Science Foundation and the Atomic Energy Commission.

He directed or co-directed seventeen Ph.D. dissertations and nine M.S. theses. He was a talented research director and had a special ability to imbue his students with a concise, clear and complete scientific writing style. He published more than fifty research papers dealing with the chemistry of nonaqueous solutions and coauthored a reference book on the subject.

Dr. Dawson was a master teacher both in the classroom and in less formal conferences and discussions. His leadership and mentoring led many graduate teaching assistants and junior faculty members to become more effective teachers. His uncompromising devotion to high achievement standards in course-work, research, education and training set the tone for our department for years to come.

Another significant contribution to the department was Professor Dawson's indefatigable advocacy for a new chemistry building. His leadership in soliciting and designing a replacement for the former chemistry building, Kastle Hall, culminated in the opening of the current Chemistry-Physics Building in 1963.

He also served the campus community in other ways. Dr. Dawson was elected a Distinguished Professor in the College of Arts and Sciences in 1954—1955, and was appointed to the rank of Distinguished Professor in the field of Physical Chemistry by the University of Kentucky Board of Trustees in 1956. He served as Acting Dean of the Graduate School in 1954—1955, 1956 and 1960—1961.

Dr. Dawson's contributions outside the university were well recognized. He was a Fellow of both the American Institute of Chemists and the American Association for the Advancement of Science. He was a member of the American Chemical Society, Electrochemical Society, Sigma Xi, Omicron Delta Kappa, Alpha Chi Sigma and Kappa Delta Pi, serving leadership roles in each of these organizations. He served several times as a Tour Lecturer and Visiting Scientist under the sponsorship of the American Chemical Society. He was also active in a variety of other nonacademic organizations.

Dr. Dawson's twenty-five years in the department represent a truly outstanding combination and balance of administrative leadership, teaching, research and service. Although Dr. Dawson passed away in 1976, his impact on the department continues to this day. The endowment of the Lyle Ramsay Dawson Lecture Series by his beloved daughter, Venita Dawson Curry, permits us to rejoice in this legacy and to continue our tradition of world-class chemical research.



Dr. Karen Goldberg

**Karen Goldberg** is a Vagelos Professor in Energy Research and Chemistry, and the Director of the Vagelos Institute for Energy Science and Technology at the University of Pennsylvania (Penn). Professor Goldberg is best known for her work developing mechanistic understanding of fundamental organometallic reactions and for application of that knowledge to the creation and optimization of new catalytic systems. Professor Goldberg has published over 125 papers, trained more than 60 graduate students and postdoctoral scholars, research associates and over 70 undergraduate students have trained in her laboratories. She is an elected Fellow of the American Association for the Advancement of Science, and a member of the American Academy of Arts and Sciences and the National Academy of Sciences.