



2015-2016 POCC Lecture Series

September 17, 2015, 8:00 PM

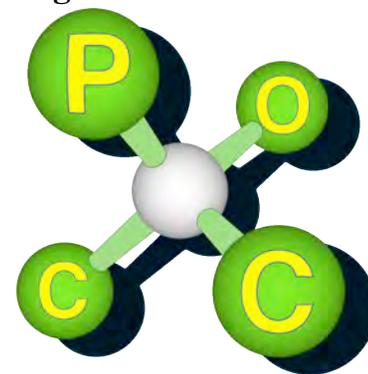
Professor Paul G. Williard

Brown University

***Reactive Organolithium Intermediates -
Size, Structure and Solvation***

Carolyn Hoff Lynch Lecture Hall
Chemistry Building, University of Pennsylvania

The Philadelphia
Organic Chemists' Club



POCClub.org

To join us for dinner before the lecture please contact POCC's assistant secretary Thomas Razler (thomas.razler@bms.com) at least one week ahead of time.

I was born and reared in Mount Carmel, Pennsylvania, located in the western middle field of the anthracite coal mining region of east central Pennsylvania. Prof. Amos Smith was my very first mentor in organic chemistry during a 10-week NSF sponsored, summer science training program for high schools students in 1967. Subsequently because of (or in spite of) this experience, I attended Bucknell University receiving both a B.S. and an M.S. degree in 1972 with a concentration in chemistry. I completed a Ph.D. degree at Columbia University in 1976 with a dissertation entitled Investigation of a Novel Carbon-Carbon Bond Forming Reaction. Immediately after completing a NIH-funded post-doctoral fellowship at the Massachusetts of Technology in 1979, I began my independent career with an appointment in the chemistry department at Brown University.

Abstract: The concept of size and steric hinderance is of utmost priority in the design and interpretation of stereoselectivity exhibited by organolithium reagents. Furthermore, organolithium reagents such as enolate ions, amide bases and alkyl lithium compounds are fundamental building blocks used routinely for synthesis of sophisticated organic chemicals. I will describe a modern method of diffusion NMR methodology referred to as the diffusion-formual weight analysis along with x-ray diffraction results to assess the structure and solvation of reactive organolithium compounds that are utilized routinely in preparative organic chemistry labs. The structural detail provided is applied to the interpretation of the mechanism and to improve the efficiency of the organolithium compounds. In as few words as possible, the take home message is that both size and solvation matter!