PHILADELPHIA ORGANIC CHEMISTS' CLUB

DATE: Thursday, March 30th, 2006; 6:00 pm dinner, 8:00 pm seminar

PLACE: Carolyn Hoff Lynch Room, located on the 1st floor (around the corner from the business office), New Chemistry Building, University of Pennsylvania, 34th and Spruce Streets, Philadelphia, PA

SPEAKER: **Dr. Raymond L. Funk, Professor of Chemistry**
The Pennsylvania State University

BIOGRAPHY: Ray Funk was born and raised in western Kansas and attended the University of Kansas where he received a BA degree in mathematics in 1973. He spent an additional year as a jayhawk auditing chemistry graduate courses before pursuing the doctoral degree at The University of California, Berkeley under the guidance of K. Peter C. Vollhardt. In 1978 he joined the research group of Sam Danishefsky at the University Pittsburgh as a NIH postdoctoral fellow and then returned to the Midwest to begin his independent research career at the University of Nebraska in 1979. He was promoted to associate professor in 1984 and in 1987 moved to The Pennsylvania State University where he presently resides as Professor of Chemistry.

TITLE: **The Diels-Alder Reaction: In Forward and Reverse**

DINNER: The meeting will be preceded by cocktails (cash bar) at 5:30 pm followed by a dinner at 6:00 pm at La Terrasse 3432 Sansom St. Phila, 19104. Reservations should be made by email: emichelotti@locuspharma.com or phone: (215)-358-2026 to Enrique Michelotti **before 5:00 pm, Monday March 27th. Please pay the $45.00 for dinner when you attend.** **Thank you.**

The Diels-Alder Reaction: In Forward and Reverse

Raymond L. Funk

Our group has extensively investigated the preparation and retrocycloadditions of substituted 4*H*-1,3-dioxins for the purpose of generating reactive unsaturated ketones or aldehydes. These novel reactants have subsequently been exploited in heterocyclic natural product syntheses as dienophiles or heterodienes and as Michael acceptors. Highlights of the talk include: 1) an intramolecular cycloaddition of a *Z*-2-acylenal heterodiene *en route* to the cytotoxin euplotin *A*; 2) an intramolecular cycloaddition of a 2-amidoacrolein for the preparation of the neuronal nicotinic receptor antagonist β-erythroidine 3) an intramolecular 7-*endo* conjugate addition for the construction of the bicyclo[4.3.0]decan-10-one substructure of the antimicrotubule agent welwistatin; 4) the development of an unconventional method for the synthesis of indoles based upon facile 6π-electrocyclic ring closures of trienecarbamates; 5) an intramolecular cycloaddition of an *ortho*-quinone methide (generated from a benzodioxin) leading to the erroneously assigned nomofungin and 6) adaptation of this basic strategy for the preparation of the correct structure as depicted in communesin B. An alternative "biomimetic" route to communesin B that features the cycloaddition (or Michael addition) of a heretofore unappreciated reactive diene, an indol-2-one, and its application in the total synthesis of the structurally related natural product perophoramidine will also be discussed.