

PHILADELPHIA ORGANIC CHEMISTS' CLUB

- DATE:** Thursday, February 27th, 2003; 6:00 pm dinner, 8:00 pm seminar
- PLACE:** Room 102, New Chemistry Building, University of Pennsylvania, 34th and Spruce Streets, Philadelphia, PA
- SPEAKER:** [Marisa Kozlowski](#), Professor of Chemistry at University of Pennsylvania

Marisa Kozlowski received a Ph.D. from the University of California at Berkeley in 1994 for work on the rational design of enzyme inhibitors under the direction of Paul Bartlett. She moved to Harvard University as a National Science Foundation postdoctoral fellow where she studied asymmetric catalysis in the laboratories of David A. Evans. She joined the faculty at the University of Pennsylvania in 1997. The major focus of Professor Kozlowski's research is the development of methods for the design of asymmetric catalysts. Two clear challenges in the area of asymmetric synthesis are the rapid identification of appropriate catalysts for given processes and the development of the cost-effective catalysts for large scale applications. Mechanism studies are key to identifying pathways for potentially useful new synthetic transformations. Professor Kozlowski received a DuPont Young Investigator Award in 1998, an NSF CAREER Award in 2001, an Alfred P. Sloan Research Fellowship, the Kahn Award for Distinguished Teaching by an Assistant Professor at the University of Pennsylvania, and an American Cancer Society Beginning Research Scholar Award in 2002.

TITLE: "Oxidative Phenolic Coupling: Asymmetric Couplings, Mechanism, and Applications in Natural Products Synthesis"

ABSTRACT: The efficient synthesis of organic structures is critical to many areas of chemistry. While processes for the efficient formation of carbon-carbon bonds from unactivated centers are very useful, such transformations are difficult. Inspired by nature's use of oxidative phenolic couplings to construct carbon-carbon bonds in many natural products, we have undertaken an investigation of this reaction. The products of such couplings are useful in asymmetric synthesis (i.e., BINOL) and in the synthesis of natural products (i.e., alkaloids, lignans, tanins). The development of a highly enantioselective oxidative binaphthol coupling reaction that uses oxygen as the terminal oxidant will be presented. Experiments to delineate the mechanism and the implications of the mechanism to the development of other oxidative processes will be discussed. Examples of the application of this reaction to the synthesis of chiral binaphthyl polymers, perylenequinone natural products, and the nigerones will be presented.

DINNER: The meeting will be preceded by a cocktail at 5:30 pm followed by a dinner at 6:00 pm at The Palladium Restaurant & Bar, 3601 Locust Walk.

Reservations should be made by calling Celine Duquenne at (610) 917-5120 or by e-mail at Celine.Duquenne@gsk.com **before 5:00 pm, Monday February 24th, 2003. Please pay the \$30.00 for dinner when you attend.** Thank you.