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Department of Chemistry

Seminar

9:45 a.m. Thursday, January 6 • 331 Smith Hall

National Institute of Health Postdoctoral Fellow

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*Studies in Asymmetric Catalysis: From
Lewis Acid-Catalyzed Diels-Alder and
1,3-Dipolar Cycloadditions
to Iridium-Catalyzed Allylic Substitution*



Abstract

Chiral Lewis acid-catalyzed Diels-Alder cycloadditions and 1,3-dipolar cycloadditions comprise some of the most powerful synthetic methods to generate enantioenriched six-membered carbocycles and five-membered heterocycles, respectively. The utility of six-membered carbocycles and five-membered heterocycles as building blocks for organic synthesis and as potential lead compounds in medicinal chemistry has led many groups to seek new strategies and catalysts to access these products in enantioenriched forms. Among the strategies to improve the selectivity of asymmetric Diels-Alder cycloadditions, the use of fluxional chirality as a means to enhance enantioselectivity is a relatively new approach. The first part of this seminar will delineate the role of pyrazolidinone auxiliaries that contain a fluxional nitrogen stereocenter as a stereocontrol element in chiral Lewis acid-catalyzed Diels-Alder cycloadditions. In addition, the importance of a proper choice of auxiliary unit will be described in the context of the first catalytic, enantioselective nitrile imine cycloadditions and a highly enantioselective approach to 1,3-dipolar cycloadditions of diazoacetates.

Hosts: Professors Christopher Cramer & T. Andrew Taton
Refreshments will be served prior to the seminar.