



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

Department of Chemistry

Seminar

9:45 a.m. Tuesday, April 17, 2012 • 331 Smith Hall

Cathleen Crudden

Professor

Department of Chemistry, Queen's University

Chirality and Control in Catalysis and Materials: Asymmetry in the Suzuki-Miyaura Reaction and Chiral Mesoporous Materials

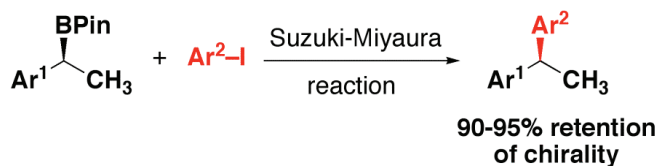
Research interests focus on catalysis and chirality with a strong link between organic chemistry, transition metals and materials. Particularly interested in developing new reactions to prepare compounds of interest to the pharmaceutical industry, specifically reactions that are enantioselective or enantiospecific, and in the preparation and study of novel nanoporous materials.

Website: <http://www.cruddengroup.com/>

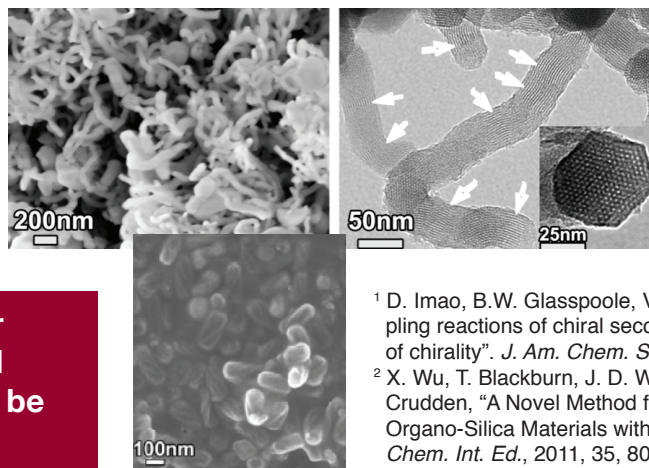


Abstract

The Suzuki-Miyaura reaction was the subject of the Nobel Prize last year. Although this reaction has become indispensable for the preparation of small molecules and materials alike, one of the uncharted territories for this transformation is chiral substrates. Recently, we have described the first example of such a reaction in series other than cyclopropyl boronic esters.¹ Our newest results in this area will be described.



In the second part of the lecture, our research into the synthesis and applications of nanostructured materials from chiral building blocks will be described.² The resulting materials have been shown to transfer chirality to achiral building blocks and also to external agents such as liquid crystals. Images of two different types of helical materials that will be described are presented below.



**Host: Professor
Andrew Harned
Refreshments will be
served prior
to the seminar.**

¹ D. Imao, B.W. Glasspoole, V. Laberge, C.M. Crudden, "Cross coupling reactions of chiral secondary organoboronates with retention of chirality". *J. Am. Chem. Soc.*, 2009, 131, 5024-5025.

² X. Wu, T. Blackburn, J. D. Webb, A. E. Garcia-Bennett, C.M. Crudden, "A Novel Method for the Synthesis of Chiral Periodic Organo-Silica Materials with Ordered Supercapillary Pores", *Angew. Chem. Int. Ed.*, 2011, 35, 8095-8099.