

## The Pattison Lecturer for 2003-2004

### Prof. Victor Snieckus

Professor and Bader chair of Organic Chemistry  
Queen's University

Victor Snieckus was born in Kaunas, Lithuania in 1937 and spent his childhood in Germany during World War II. He received the B.Sc. degree at the University of Alberta (1959) where he was strongly influenced by R. Sandin. After graduate work at the University of California, Berkeley (M.Sc. with D.S. Noyce) and Oregon (Ph.D. with V. Boekelheide), he returned to Canada for a postdoctoral year with O.E. Edwards at NSERC, and then joined the faculty at the University of Waterloo in 1966. He held the Monsanto/NRC Industrial Research Chair, 1992-1998, at which time he accepted the Bader Chair in Organic Chemistry at Queen's University.



From May 3 to May 5 Professor Snieckus will present three lectures.

**Professor Snieckus will present three lectures during his visit to UWO.**

**\*\*\* All lectures will take place at 3:00 p.m. in the 3M Centre\*\*\***

**( Room 3250)**

#### 1. Organic Synthesis: Quo Vadis?

Monday, May 3, 3:00 p.m., 3M Centre, Room 3250

This phrase, perhaps in a more modern language, has been on the lips of the practitioners of this demanding science-art, undoubtedly from the earliest times but more vigorously in the last two decades. Comparison of achievements of yesterday and today suggests progress in our abilities to construct molecules of complexity, with higher stereocontrol, faster analysis, and greater prediction of eventual success. However, the practical aspects, on any scale, of brevity, efficiency, safety, eco-consciousness, and energy- and resource-frugality remain, are still crudely addressed. The aim of this lecture is to present a historical tour of achievements in organic synthesis (from Wohler to *Classics In Total Synthesis II*), to delve into the changing lecture notes of academic synthetic chemists in order to present of the significant aspects of the field, and to give a status report and prognosis, always a treacherous undertaking, of this vital and central branch of chemistry.

[Top](#)

#### 2. Sight-seeing the Metalated Flatlands. Carbanion-mediated Strategies for Synthetic Aromatic Chemistry

Tuesday, May 4, 3:00 p.m., 3M Centre, Room 3250

**"The most common reaction of aromatic compounds is electrophilic aromatic substitution. Many different substituents can be introduced ... Starting from only a few simple materials, we can prepare many thousands of substituted aromatic compounds."**

J. McMurry, *Organic Chemistry*,  
5th Ed., Brooks/Cole, Pacific Grove, CA, 2000, p. 592.

Over sixty years ago, Gilman and Wittig independently and concurrently observed the *ortho*-deprotonation of anisole by alkyllithium reagents and thereby discovered the Directed *ortho* Metalation (DoM) reaction. The systematic studies by Hauser in the early 1960s on other Directed Metalation Groups (DMGs) and, subsequently, the discoveries of Beak, Christensen, Gschwend, Meyers, Muchowski, and others in the late 1970s propelled this process into the arsenal of the synthetic organic chemist. The last decade has seen increasing application of DoM chemistry in large-scale industrial processes.

Our group aims to enhance the earlier findings, develop fundamentally new carbanionic aromatic chemistry, and connect the methods to evolving modern methodology. The end point is to contribute new practical methodology with scope and application. This lecture will provide a perspective of the evolving opportunities offered by DoM and its offsprings as exemplified graphically below which will hopefully give a flavor of modern anionic aromatic chemistry in chemical synthesis.



[Top](#)

#### 3. The Aromatic Metalation Catalytic Cross Coupling Symbiosis

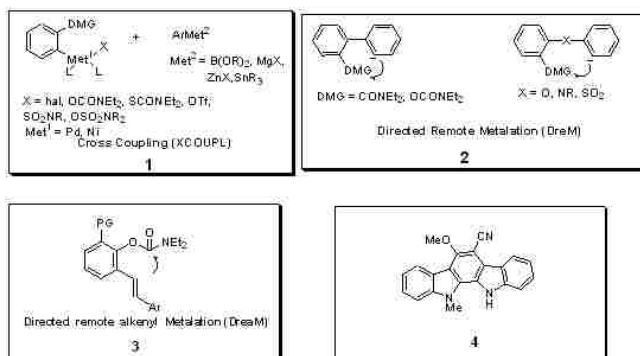
Wednesday, May 5, 3:00 p.m., 3M Centre, Room 3250

“Selective cross-coupling reactions between C sp<sup>3</sup> and C sp<sup>2</sup> centers has been one of the most difficult tasks in carbon – carbon bond synthesis until the early 1970s... Now ...(it) has become the reaction of first choice for this purpose.”

Tamao, K. *In Comprehensive Organic Synthesis*, Pergamon Press; London : Vol 3, 1991, p 435.

Beginning in the early 1970s, sp<sup>2</sup>-sp<sup>2</sup> bond formation took on a new dimension with the discovery of a number of transition metal – catalyzed cross coupling reactions by chemists from many countries. The simple link between the Directed *ortho* Metalation reaction and the rich cross coupling chemistry of B, Mg, Zn, and Sn ( 1 ) has become a useful strategy in aromatic and heteroaromatic synthesis and, especially in the case of B, has been adapted widely in industrial practice. The further connection of this sequence to Directed remote Metalation (DreM) ( 2 ) and Directed remote alkenyl Metalation (DreaM) ( 3 ) has allowed development of new regioselective construction of condensed aromatics and heterocycles which equal and/or supercede classical protocols.

This lecture will present recent results from our laboratories following these themes, their application to bioactive and natural product construction (e.g. 4 ), and with special emphasis on recently discovered cross coupling groups (XCOUPL) while not denying the impact of the venerable Suzuki reaction.



Refreshments served before talks

For more information contact: [Robert Hudson](#) (519-661-2111 ext. 86349)

[Top](#)

