

DEPARTMENT OF CHEMISTRY AND ENVIRONMENTAL SCIENCE
SEMINAR SERIES
SPRING 2018

DATE: FRIDAY, FEBRUARY 2, 2018

WHERE: CENTRAL KING BUILDING - 116

TIME: 1:00PM

GUEST SPEAKER

Olga Mukhina

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TOPIC

Photochemistry in Diversity-Oriented Synthesis and Beyond: Developing Methods to Access N, O, S- containing Polyheterocycles of Complex Topologies

ABSTRACT

Efficient synthetic transformations resulting in the rapid growth of molecular complexity are highly sought-after. Photochemistry offers expedited access to complex chemotypes where ground state reactions are at best challenging if not impossible. In the first part of the talk we will explore the photochemistry in the context of diversity-oriented synthesis discussing a general methodology for the rapid generation of molecular complexity and diversity in nitrogen-containing polyheterocycles based on a short, three- to four-step, synthetic sequence involving (i) experimentally simple modular assembly of photoprecursors; (ii) a key photochemical step to construct the core scaffold; and (iii) postphotochemical modification to further diversify the target. The second part will be devoted to the application of the photochemistry to target synthesis of oligocyclotryptamine alkaloids, highlighting the synthesis and photochemical fragmentation of diazenes as a new method for regio- and stereospecific construction of quaternary stereocenters.

Committee members:

Dr. Tamara Gund, Dr. Yong-Ick Kim, Dr. Yuanwei Zhang