Camille & Henry Dreyfus Lectureship

8 - 9 April 2024

Department of Chemistry
University of Basel
St. Johanns-Ring 19
4056 Basel
Large Lecture Hall

Prof. Dr. Eric N. Jacobsen
Department of Chemistry & Chemical Biology
Harvard University
Cambridge Massachusetts, USA

University of Basel

The Camille & Henry Dreyfus Foundation

Camille & Henry Dreyfus Lectureship

In memory of the Dreyfus brothers, the Camille and Henry Dreyfus Foundation Inc. has established the Dreyfus Lectureship at the University of Basel. The annual Lectureship will bring a leading chemist from the United States to the Basel campus to deliver a series of talks and to meet with faculty, students and industry representatives in order to enhance the relationship between Swiss and U.S. science.

Eric N. Jacobsen

is the Sheldon Emory Professor of Organic Chemistry at the Department of Chemistry and Chemical Biology at Harvard University. He has been awarded the Camille & Henry Dreyfus Lectureship for his outstanding achievements in the field of catalysis. Research in his group is dedicated to discovering useful catalytic reactions, and to applying state-of-the art mechanistic and computational techniques to the analysis of those reactions. Several of the catalysts developed in his labs have found widespread application in industry and academia.

Eric N. Jacobsen graduated from New York University in 1982 with a B.S. in Chemistry. His Ph.D. work was done at U.C. Berkeley under the direction of Robert Bergman. In 1986, he returned to the East Coast of the U.S. for an NIH postdoctoral fellowship with Barry Sharpless. In 1988, he began his independent career at the University of Illinois. He moved to Harvard University as full professor in the summer of 1993. He was named the Sheldon Emory Professor of Organic Chemistry in 2001, and served as Chair of the Department of Chemistry and Chemical Biology between 2010 and 2015.

In recognition of his achievements Eric N. Jacobsen has received numerous honors and awards including the Arthur C. Cope Medal of the American Chemical Society, the Chirality Medal, and elections to the U.S. National Academy of Sciences and the American Academy of Arts and Sciences.

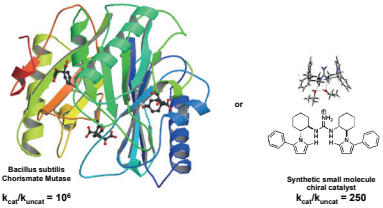
08.04. 2024 **17:00 h**

Introduction

Prof. Dr. Torsten Schwede (Vice President for Research)
Prof. Dr. Olivier Baudoin (Head Department of Chemistry)

Catalysis: A Frontier at the Center of Chemistry

In the minds of chemists at least, there is no doubt that many of the most pressing challenges facing humanity – such as health, the environment, and energy – will have to be addressed using chemistry. Catalysis lies at the heart of nearly every challenge in modern chemistry, cutting across all of its subdisciplines and connecting to fields as diverse as biology, materials science, and engineering. However, chemists' ability to design new catalysts for intended purposes remains quite primitive, typically relying on small incremental advances or serendipitous discoveries. In this lecture, I will present an organic chemist's perspective on the field of catalysis, touching on some of the specific challenges my group has sought to address. In particular, I will explore the relationship between enzymatic and small-molecule catalysis, focusing on my own group's efforts to draw lessons from biological systems to design effective and broadly useful synthetic catalysts.



09.04. 2024 **17:00 h**

Privileged Chiral Catalysts: Selectivity *and* Generality in Enantioselective Catalysis

Privileged chiral scaffolds—structures that have been demonstrated to induce high levels of enantioselectivity across a variety of mechanistically distinct reactions—have proven profoundly enabling to the discovery of new asymmetric catalytic reactions. This lecture will outline the development of a specific, new class of privileged chiral catalysts: dual H-bond donors (HBDs) bearing aryl-pyrrolidino-*tert*-leucine motifs. These HBD catalysts have proven broadly useful in a variety of C–C and C–heteroatom bond-forming processes, with enantioselectivity dictated primarily through selective stabilizing non-covalent interactions. Detailed case studies on the mechanism of enantioinduction with aryl-pyrrolidino-*tert*-leucine HBDs will be presented, highlighting the cooperative features of these simple organic molecules that are likely responsible for the privileged nature of this scaffold.