SEMINAR PROGRAM

DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY
UNIVERSITY OF OKLAHOMA

CHEMISTRY & BIOCHEMISTRY

NORMAN, OK 73019-3051 ★ (405) 325-4811 ★ FAX: (405) 325-6111

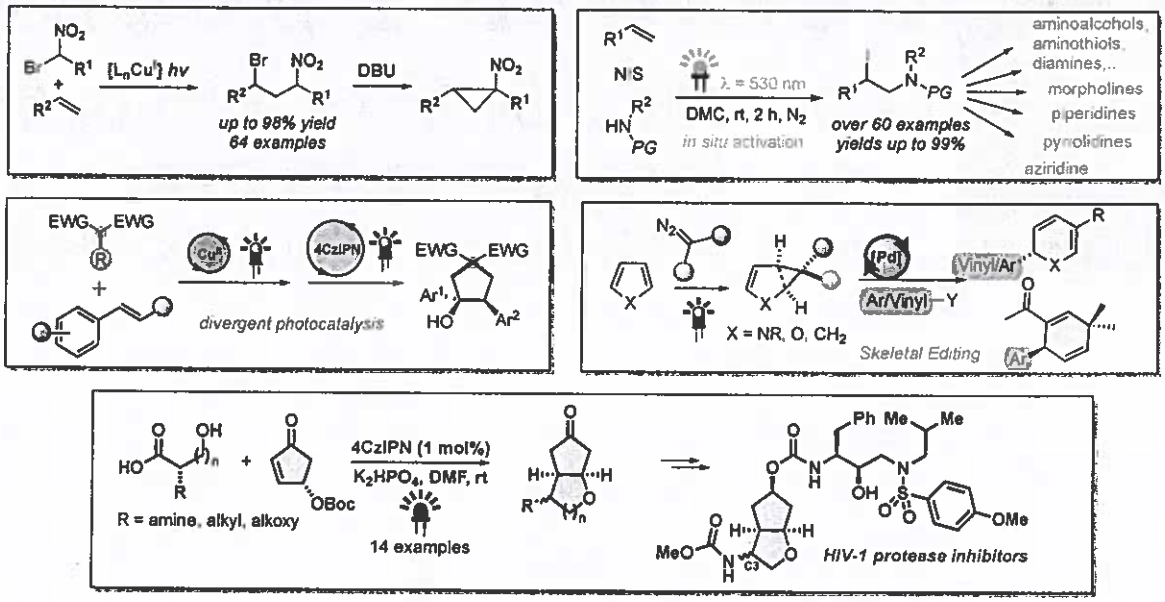
We Are Pleased to Announcement
Presented By

Oliver Reiser
Institut für Organische Chemie, Universität Regensburg

Friday, April 28, 2023
1:00 pm
SLSRC 3410/3430

Copper makes the difference:
Developing Sustainable Photoredox Catalyzed Transformations

Synthetic organic chemistry undertakes significant efforts to develop new catalytic transformations that utilize greener reagents and avoid stoichiometric additives. In this regard, visible-light photoredox catalysis offers a unique activation mode of molecules, which serves as an alternative to many thermal transition-metals catalyzed reactions. The vast majority of photoredox-catalyzed processes capitalizes on heavy metals, namely, Ru(II) or Ir(III)-complexes which can serve as single electron oxidants or reductants in their photoexcited states. Copper-based photocatalysts are rapidly emerging, offering not only economic and ecologic advantages but, in addition, can interact with substrates beyond electron transfer via inner sphere mechanisms, which have been successfully utilized to achieve challenging transformations. Alternatively, polycyclic arenes or donor- acceptor complexes of substrates and reagents can promote photocatalytic transformations. Selected synthetic applications from our laboratory will be discussed, highlighting the complementary opportunities of copper and other inexpensive photocatalysts. (More information on back)



Leading references: A. Reichle, M. Koch, H. Sterzel, L.-J. Großkopf, J. Floss, J. Rehbein, O. Reiser, *Angew. Chem.* **2023**, e202219086; N. Katty, Q-Q. Zhao, T. Mandal, O. Reiser, *ACS Catal.* **2022**, *12*, 14398; A. Reichle, H. Sterzel, P. Kreitmeier, R. Fayad, F. N Castellano, J. Rehbein, O. Reiser, *Chem. Commun.* **2022**, *58*, 4456; A. Chinchole, M. A. Henriquez, D. Cortes-Arriagada, A. R. Cabrera, O. Reiser, *ACS Catal.* **2022**, *12*, 13549; M. Kumar, S. Verma, V. Mishra, O. Reiser, A.K. Verma, *J. Org. Chem.* **2022**, *87*, 6262; Q-Q. Zhao, J. Rehbein, O. Reiser, *Green Chem.* **2022**, *24*, 2772.

Biography content: *Oliver Reiser studied chemistry at the Universities of Hamburg, Jerusalem, and Los Angeles (UCLA) and obtained his Ph.D. in 1989 with Prof. Dr. Armin de Meijere. He spent 2.5 years as a postdoctoral fellow with Dr. R. Miller, IBM Research Center, San Jose, USA, and with Prof. Dr. D. A. Evans, Harvard University, Cambridge, USA. In 1992 he moved to the University of Göttingen as an Assistant Professor, and in 1996 he moved to the University of Stuttgart as an Associate Professor. Since 1997 he has been a Professor of Organic Chemistry at the University of Regensburg, having served as Vice President and currently as Dean responsible for Research. His group's research interests are focused on developing sustainable methodology for converting renewable resources towards value-added compounds.*