

Enhancing carbon dioxide value through C-C bond forming reactions

Wesley H. Bernskoetter
Professor, Department of Chemistry
University of Missouri-Columbia



Chemistry
Seminar on the
use of CO₂ in C – C
bond formation

Monday
Nov. 27 at 4
pm in 303
Schrenk

Please contact
Dr. Amitava
Choudhury at
choudhurya@mst.edu
for further
information.

MISSOURI
S&T

Abstract: Two strategies for reducing the concentration of CO₂ in the atmosphere are sequestration, where carbon dioxide is captured and stored either by chemical/biochemical conversion or by injection into underground geological formations, and chemical utilization, where CO₂ is used as a C₁ source in the synthesis of fuels or commodity chemicals. While the synthesis of commodity chemicals from CO₂ cannot match the scale required to significantly impact the effects of anthropogenic CO₂ emission, it can create intrinsic economic value from CO₂ waste. In this presentation we will discuss our recent efforts to develop iron and ruthenium complexes which couple CO₂ with light olefins to create valuable organic carboxylates. These will include a discussion of the organometallic catalytic intermediates, mechanistic obstacles to catalyst development and our latest experimental advances.

About the speaker: Prof. Bernskoetter is a native of Jefferson City, MO, received the B.Sc. in Chemistry from Benedictine College, Atchison, KS in 2002 and the Ph.D. in Chemistry from Cornell University in 2006. Prof. Bernskoetter began his postgraduate research work as a Postdoctoral Research Fellow at the University of North Carolina-Chapel Hill where he worked with Prof. Maurice Brookhart where he studied carbon-hydrogen bond activation. In 2009 he began his academic career at Brown University where he became the Manning Assistant Professor of Chemistry in 2012. In 2015, he returned to his home state and the University of Missouri. His research program focuses on the use of inorganic and organometallic complexes to address challenges relevant to our planet's growing energy and chemical sustainability concerns.