

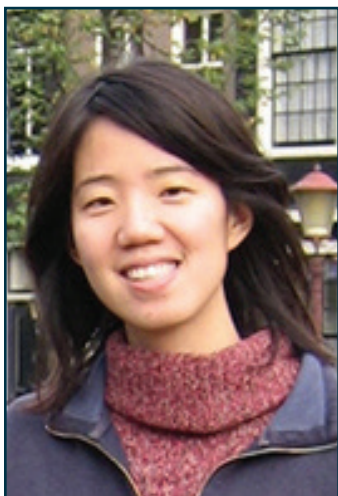


UNIVERSITY OF MINNESOTA  
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# Department of Chemistry

## Seminar

9:45 a.m. Thursday, September 11 • 331 Smith Hall



Assistant Professor  
**Connie Lu**  
Department of Chemistry  
University of Minnesota

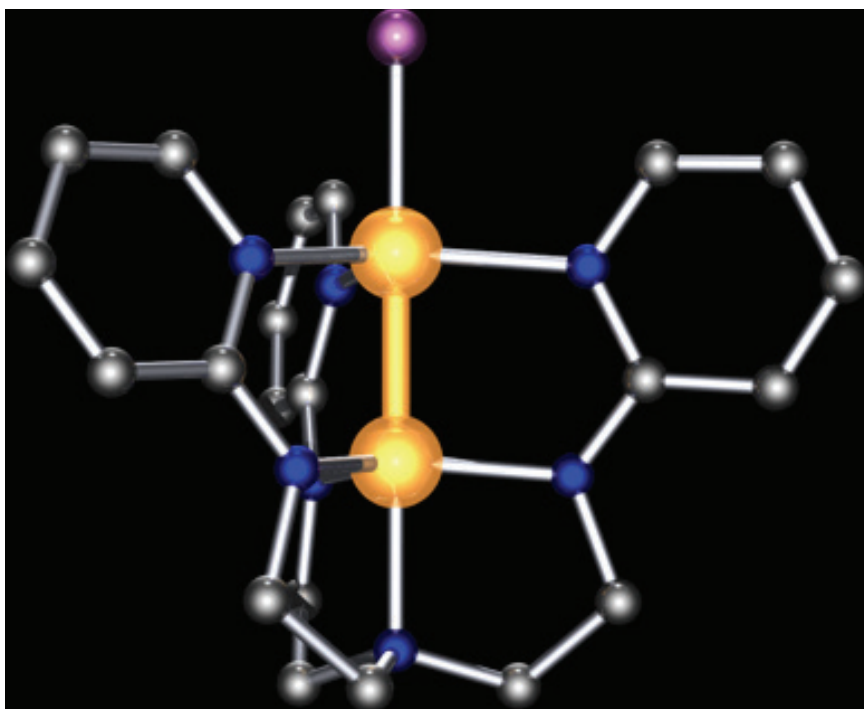
### *Harnessing Metal-Metal Bonds: Redox Properties and Small-Molecule Reactivity*

Research explores uncommon transformations mediated by transition metal centers: specifically, designing and developing metal-ligand systems to study fundamental aspects of CO<sub>2</sub> conversion and C-C bond cleavage; and synthesizing new families of bimetallic complexes to better understand metal-metal bonding and their use in multi-electron transfer reactions.  
Website: <http://www.chem.umn.edu/directory/faculty.lasso?serial=2979>

#### Abstract

The Lu group investigates metal-metal bonds of first-row transition metals. Bonds between first-row metals are typically weaker than their heavier congeners, which presents a synthetic challenge to isolate and study them. We are broadly interested in developing these hybrid species for catalysis, where using non-precious metals is sensible from economical and sustainability standpoints.

Transition metal pairs can exhibit multi-electron redox capability, which is promising for reducing small-molecules. The synergistic combination of different metals could generate hybrid “metals” with original properties and/or unique reactivities. We have investigated diverse metal-metal pairings to understand: how one transition metal influences another, and how to tune chemical properties by simply varying the metals. We are currently exploring this approach to develop bimetallic catalysts for nitrogen and hydrogen activation.



Refreshments will be served prior to the seminar.