

Accepted Manuscript

Leveraging Molecular Metal-Support Interactions for H₂ and N₂ Activation

Ryan C. Cammarota, Laura J. Clouston, Connie C. Lu

PII: S0010-8545(16)30166-7

DOI: <http://dx.doi.org/10.1016/j.ccr.2016.06.014>

Reference: CCR 112279

To appear in: *Coordination Chemistry Reviews*

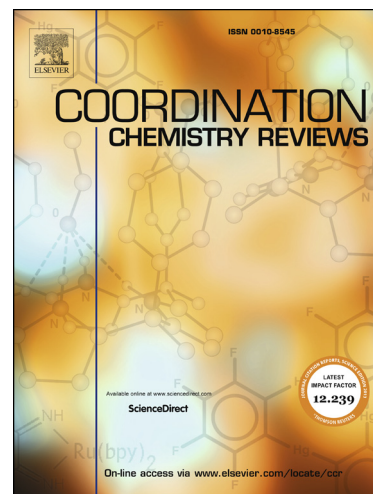
Received Date: 19 April 2016

Revised Date: 14 June 2016

Accepted Date: 20 June 2016

Please cite this article as: R.C. Cammarota, L.J. Clouston, C.C. Lu, Leveraging Molecular Metal-Support Interactions for H₂ and N₂ Activation, *Coordination Chemistry Reviews* (2016), doi: <http://dx.doi.org/10.1016/j.ccr.2016.06.014>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Leveraging Molecular Metal-Support Interactions for H₂ and N₂ Activation

Ryan C. Cammarota,* Laura J. Clouston, and Connie C. Lu*

Department of Chemistry, University of Minnesota, Minneapolis, Minnesota 55455-0431, United States

*corresponding author e-mail: camma031@umn.edu, clu@umn.edu

Abstract

Many challenging chemical reactions require precious metal catalysts to proceed. Bio-inspired catalysts featuring multiple earth-abundant metals are an attractive alternative, as they offer boundless possibilities for facilitating processes that the constituent metals cannot mediate on their own. Our work utilizes a supporting metal as an electronic lever for tuning a base metal (Co, Ni) active site via a metal-metal bond. This approach has allowed for the development of metal-support catalysts for reductive N₂ silylation and olefin hydrogenation. The bimetallic catalysts display markedly enhanced activity compared to the analogous single metal centers. In this review, we investigate the role of the supporting metal in substrate binding, activation, and catalysis, to inform future efforts in the optimization and development of molecular metal-support catalysts.

Download English Version:

<https://daneshyari.com/en/article/5150935>

Download Persian Version:

<https://daneshyari.com/article/5150935>

[Daneshyari.com](https://daneshyari.com)