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(631) 632-8433  
taejin.kim@stonybrook.edu

Student Representative  
KE XIONG  
(302) 562-5785  
kexiong88@gmail.com

**Wednesday, February 18, 2015**  
**La Quinta Inn & Suites, Somerset, NJ**



**Gary Brudvig**

Benjamin Silliman Professor of Chemistry  
Professor of Molecular Biophysics and Biochemistry  
Director of the Yale Energy Sciences Institute  
Yale University  
New Haven, Connecticut 06520-8107  
gary.brudvig@yale.edu

**Heterogenized Organometallic Catalysts for Water Oxidation**

*Gary W. Brudvig<sup>1</sup>, Stafford W. Sheehan<sup>1</sup>, Julianne M. Thomsen<sup>1</sup>, Ulrich Hintermair<sup>1,2</sup>, Robert H. Crabtree<sup>1</sup>, and Charles A. Schmuttenmaer<sup>1</sup>*

<sup>1</sup>Department of Chemistry, Yale University

<sup>2</sup>Centre for Sustainable Chemical Technologies, University of Bath

Molecular catalysts are known for their high activity and tunability, but their solubility and limited stability often restrict their use in practical applications. We have characterized a molecular iridium catalyst for water oxidation that binds directly and robustly to oxide surfaces without the need for any external stimulus or additional linking groups. On conductive electrode surfaces, this heterogenized molecular catalyst oxidizes water with low overpotential, high turnover frequency, and minimal degradation. Spectroscopic and electrochemical studies show that it does not decompose into iridium oxide, thus preserving its molecular identity, and that it is capable of sustaining high activity toward water oxidation with stability comparable to state-of-the-art bulk metal oxide catalysts.