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**Wednesday, November 20, 2013**  
**Somerset-Bridgewater Hotel, Somerset, New Jersey**  
(Formerly Crowne Plaza Hotel)

**Burwell Award Lecture**

**Charles T. Campbell**

Departments of Chemistry and of Chemical Engineering  
University of Washington  
Seattle, WA 98195-1700 USA  
Email: [campbell@chem.washington.edu](mailto:campbell@chem.washington.edu)

**Thermodynamics and kinetics of elementary reaction steps on late transition metal catalysts, and using them to search for better catalysts**

A survey of experimental and theoretical results concerning the thermodynamics and kinetics of surface chemical reactions of importance in late transition metal catalysis for energy technology will be presented. Topics include: (1) calorimetric measurements of the adsorption energies of small molecules and molecular fragments on single crystal surfaces, and their comparison to DFT results; (2) new measurements of the entropies of adsorbates and the trends they follow, and (3) new ways to estimate prefactors in the rate constants for elementary steps in surface reactions. We will also discuss how to use these together with DFT calculations and/or elementary-step rate measurements to build microkinetic models for multi-step catalytic reactions. Finally, we will discuss a method for analyzing these to quantify the extent to which each elementary step and intermediate controls the net rate, and describe how one can use this to define the key descriptors that can be used for computational searches to discover better catalyst materials.

- Work supported by NSF and DOE-OBES Chemical Sciences Division.
- Burwell Award sponsored by Johnson Matthey.

Dinner is a buffet, and includes <u>a choice of beef, chicken or fish</u>		Members	<b>\$40</b>
		Non-members	<b>\$50</b>
Social Hour (Cash Bar)	6:00 PM	Students	<b>\$25 (Student Members = \$10)</b>
Dinner	7:00 PM	Retired/Post-Doc/ Unemp.	<b>\$40 (Members = \$30)</b>
Presentation	7:45 PM	Annual Dues	<b>\$35 (Student/Retired = \$15)</b>

**Deadline for dinner reservations is 2:00 p.m. Friday, November 15, 2013**

Email Zhong He (zhe@primusge.com) for reservations. With the exception of extreme circumstances, anyone not canceling reservations by the above deadline will be billed for dinner regardless of attendance.

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**2013-2014 Officers:** **Lucas Dorazio** (Chair), **Xiaoming Wang** (Chair-Elect), **Simon Podkolzin** (Past Chair), **Israel Wachs** (Catalysis Society Rep), **Zhong He** (Secretary), **John Brody** (Treasurer), **Robert McGuire** (Webmaster), **John Byrne**, **Marco Castadi**, **Partha Nandi** (Directors), **Taejin Kim** (Director-Membership), **Christopher Keturakis** (Student Representative)