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**Wednesday, November 14<sup>th</sup>, 2018**  
**Clarion Hotel, 60 Cottontail Ln, Somerset, NJ 08873**



**Teh C. Ho**

Hydrocarbon Conversion Technologies  
Bridgewater, NJ 08807, USA

***2018 F.G. Ciapetta Lectureship in Catalysis***  
(sponsored and administered by NACS)

**Ultra-Deep Diesel Hydrodesulfurization Catalysis and Process: A  
Tale of Two Sites**

Hydrodesulfurization catalysts have two types of active sites for hydrogenation and hydrogenolysis reactions. While hydrogenation sites are more active for desulfurizing refractory sulfur species, they are more vulnerable to organonitrogen inhibition than hydrogenolysis sites. In contrast, hydrogenolysis sites are less active for desulfurizing refractory sulfur species but are more resistant to organonitrogen inhibition. This dichotomy is exploited to develop an ultra-deep hydrodesulfurization stacked-bed reactor comprising two catalysts of different characteristics. The performance of this catalyst system can be superior or inferior to that of either catalyst alone. A theory is developed to predict the optimum stacking configuration for maximum synergies between the two catalysts. The best configuration provides the precise environment for the catalysts to reach their full potentials, resulting in the smallest reactor volume and maximum energy saving. Model predictions are consistent with experimental results. A selectivity-activity diagram is developed for guiding the development of stacked-bed catalyst systems.

## Speaker Bio:

Teh Ho is the 2018 recipient of the F.G. Ciapetta Lectureship in Catalysis. Dr. Ho has recently retired from a 37-year industrial career, which included his work at ExxonMobil's corporate research laboratory and Halcon R&D Corporation. The dominant portion of his experience was in hydrodesulfurization and hydrodenitrogenation catalysis, for which he has been recognized numerous times through receiving the Industrial Innovation Award in 2006 from the American Chemical Society, the R.H. Wilhelm Award from the American Institute of Chemical Engineers in 2004, and the Thomas Alva Edison Patent Award in 2002 for the commercialization of the Nebula Catalyst. Recently in 2016, Dr. Ho was granted membership into the US National Academy of Engineering "for catalytic removal of sulfur and nitrogen compounds from hydrocarbon fuels." He served the NY Metropolitan Catalysis Society as president in 1997 and as a board director from 1998-2000. Dr. Ho earned a B.S. at Tunghai University in Taiwan and a Ph.D. in chemical engineering from the University of Delaware. He currently serves as a consultant with international energy companies and continues to be active in the field of chemical engineering and catalysis.

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 Membership Dues	<b>\$35 (Students = \$15)</b>

**Deadline for dinner reservations is 4:00 p.m. Friday, November 9th, 2018**

To make your reservation, fill out the [online form](#). 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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