Purdue Catalysis Center

Presents:

Dr. Stacey Zones
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“Zeolites as Key Contributors to Catalytic Advances for a Variety of Chemical Process Technologies”

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Abstract: In this presentation, I will briefly survey some of the uses of zeolites in commercial catalysts. I will show the span of development into applications and how traditional uses such as in catalysts for fuels and petrochemicals, while still of great value, have been augmented by the commercialization of newer zeolite materials in areas like emissions control, products from bio renewables and gas conversion and separation technology. Then in a more specific research discussion, I will give examples of the expanding complexity of how to use a zeolite as a catalyst. So if we juxtapose an initial concept of using the structures for shape-selective discrimination with a newer one of how to control active sites within the zeolite architecture, we see more complexity but also more opportunity for more selective catalysts. I will go into detail on a few problems. The first is creating a better catalyst by engineering types of sites in a delaminated borosilicate. The second example will deal with engineering zeolite crystal size by understanding some solution dynamics in the synthesis. I look forward to visiting and having discussions on these concepts.

Biography: Stacey I. Zones is currently a Research Fellow at Chevron Energy Technology Company, working in the catalyst department. He has also been an Adjunct Professor in Chemical Engineering at the University of California, Berkeley. Dr. Zones earned a Ph.D. in Inorganic Chemistry from the University of California at San Diego in 1978. He joined Chevron in 1980 and began a program in searching for new zeolite structures with a strong emphasis on designing organic cations to aid in the synthesis. He continues to head that effort for Chevron, as well as contribute as a team member in efforts to develop the zeolite products into commercial use, working on manufacturing and catalyst development efforts. He is also involved in new business opportunities. Dr. Zones is a co-author and co-inventor on >170 zeolite science papers and >180 technology patent applications. His research has been recognized by the International Zeolite Association with the 2001 Breck Award for outstanding research contributions, the Houdry Award from the North American Catalysis Society in 2007 for contributions in applied catalysis, election to the U.S. National Academy of Engineering in 2014, and the Practice Award from the Catalysis and Reaction Engineering Division (CRE) of AIChE in 2016.