Sustaining Economic Competitiveness with Catalyst Design

The commercialization of catalyzed processes, which produce hundreds of millions of pounds of products annually, is the result of a significant number of years of catalyst research, process research, and optimization of plant design. Despite this considerable investment in technology development, catalyzed processes still represent a unique opportunity for optimization through improved catalysts, enhanced product selectivity, extended catalyst life, or the use of cheaper feedstocks. In fact many catalyzed processes—even those which have existed for many years in the chemical industry—must be continuously improved to sustain economic competitiveness. Numerous companies today maintain a major R&D investment in developing improved processes, as evidenced by numerous patent applications filed on processes which have been commercialized for 30 years or more.

This talk will give a high level overview of three well-established catalyzed technologies: hydroformylation, epoxidation, and reductive amination. Included in the discussion are the major product(s) formed from the process, the catalysts employed, proposed mechanisms, and opportunities for technology improvements.