



Wolfson Department of Chemical Engineering Special Seminar
Lecture Hall 6, Wolfson Department of Chemical Engineering,
Tuesday May 28th at 1:30pm

Heterogeneous Catalysis: Energy and Environmental Application

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Energy and Environmental issues have been affected modern societies, and are directly related to utilization of natural resources and chemicals. Catalysis plays a key role in modern life. Moreover, heterogeneous catalysts are indispensable materials in the chemical industry and have the ability to control chemical reactions to produce target products with high efficiency. In addition to the synthesis of new catalysts, over the past decade, advanced characterization tools and methods along with sophisticated theoretical methods allowed for the understanding of detailed structures of catalysts and reaction mechanisms. Additionally, they provided a guideline for the rational design of new catalysts. However, extensive catalysis research is required for controlling the physicochemical properties, controlling the interconnected reaction pathways, achieving the higher efficiencies and increasing the catalyst lifetimes. For the design of the next-generation catalyst, synthesis-theory-characterization-combined approaching is necessary to understand the molecular and atomic level complexity in catalysis.

In the past several years, our group has investigated the fundamental relationship between molecular/electronic structure and catalytic activity for the NO+CO reaction and Furfuryl alcohol conversion over a series of bulk and supported metal oxide catalysts. In the current talk, I will present the fundamentals and energy/environmental applications of heterogeneous catalysis. Furthermore, I will discuss how chemical engineering makes an impact on the heterogeneous catalysis research.

Refreshments will be served at 1:15pm