



FIRST INTERNATIONAL NANOTECHNOLOGY CONFERENCE ON COMMUNICATION AND COOPERATION

Abstract

Catalysis in the 21st Century: Exploiting the Nanoscale

The synthesis of catalysts has relied on the control of the atomic/molecular-scale and nanoscale-scale structures to create materials that have led to world-wide societal and economic benefit. Several historical examples will be presented with emphasis on how the nanoscaled architecture contributed to the success of the catalyst. Recent advances in the synthetic methodologies used to control nanometer-sized assembly, analytical methodologies employed to identify and probe structure at the nanometer length scale, and predictive capabilities used to provide guiding principles of nanometer scale structure/property relationships will endow new catalysts with unprecedented control over reaction efficiencies and selectivities. Examples of these trends and targets in future catalysis research will be described.