Center for Environmentally Beneficial Catalysis

CEBC Colloquium

Catalysis over Metal Oxides: Shape and Composition Effects

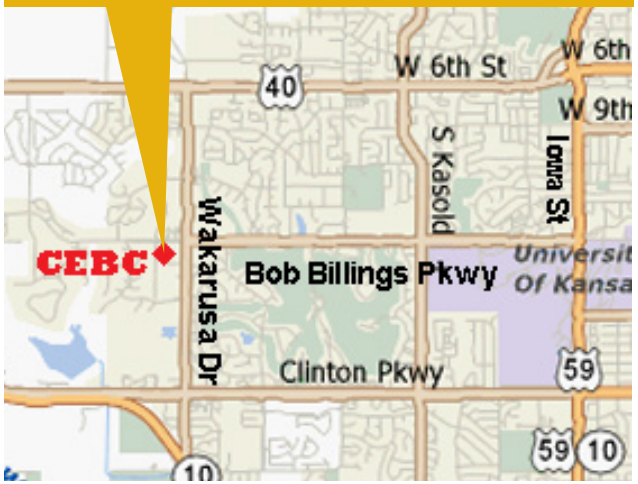
Dr. Zili Wu

Group Leader, Surface Chemistry and Catalysis
Oak Ridge National Laboratory
Oak Ridge, TN

Recent advances in nanomaterials synthesis make it possible to achieve nanocrystals with crystallographically defined surface facets, composition and high surface area, which can be considered as ideal model systems for catalytic studies under realistic conditions. In this work, I will showcase how we can make use of nanoshapes of binary oxide (ceria) and ternary oxide (SrTiO3 perovskite) as model systems to gain molecular level understanding of the shape and composition effects on both the redox and acid-base properties and catalysis over these oxides. Catalytic insights are made possibly by investigating the atomic structure and surface chemistry on the surfaces of these oxides via both in situ spectroscopy and advanced electron microscopy. The work manifests the importance of understanding both the top surface atomic structure and composition for catalysis over both single and mixed oxide catalysts.

9:00 a.m. Thursday
November 8, 2018

CEBC Seminar Room, B104
Building B, 1501 Wakarusa Drive,
Lawrence, KS



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About the presenter

Dr. Zili Wu obtained his PhD in physical chemistry at Dalian Institute of Chemical Physics in 2001 and spent over three years at Northwestern University as a postdoctoral associate before joining the staff of ORNL in 2006. He has over 15 years' experience in heterogeneous catalysis, applied spectroscopy and nanomaterial synthesis. His research interests lie in the fundamental understanding of catalytic active sites on the surfaces and interfaces involved in heterogeneous catalysis, photocatalysis and electrocatalysis, establishing structure-catalysis relationships in catalytic solids as a function of time and space, using in situ and operando characterization methods, and fabricating nanomaterials with well-defined structures.

The Center for Environmentally Beneficial Catalysis (CEBC) at the University of Kansas and its partners are developing green technologies to help the chemical industry prevent waste and conserve the earth's natural resources.

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