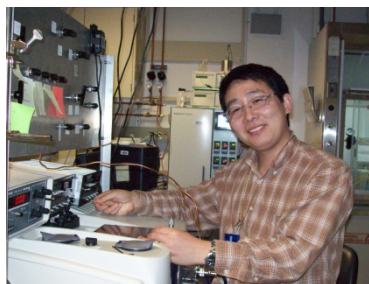


Zili Wu

R&D Staff
Chemical Functionality Group
Center for Nanophase Materials Science and
Chemical Science Division
Oak Ridge National Laboratory
(865) 576-1080
wuzl@ornl.gov



Education

Wuhan University, Wuhan, China	Environmental Chemistry	B.S. 1996
Dalian Institute of Chemical Physics, China	Physical Chemistry	Ph.D. 2001

Professional Experience

2006–p R&D Staff Member, Center for Nanophase Materials Sciences and Chemical Science Division, Oak Ridge National Laboratory (ORNL)
2003–2006 Postdoctoral Research Associate, Department of Chemistry, Northwestern University
2001–2003 Research Associate, State Key Laboratory of Catalysis, Dalian Institute of Chemical Physics, China

Professional and Synergistic Activities

2006–p Member: *American Chemical Society, North American Catalysis Society*
2001–p Journal Reviewer: *Applied Catalysis, Catalysis Communications, Chemical Communications, Journal of American Chemical Society, Journal of Catalysis, Journal of Nanoparticle Research, Journal of Physical Chemistry, Physical Chemistry Chemical Physics*
2008–p Proposal Reviewer: American Chemical Society - Petroleum Research Funding Program; National Science Foundation

Research Interests

1. Heterogeneous catalysis, nanomaterials for catalysis and photocatalysis, and applied spectroscopy. Specific techniques include *in situ/operando* infrared spectroscopy, multi-wavelength Raman spectroscopy and surface enhanced Raman spectroscopy, mass spectrometer, micro-reaction system, physisorption and chemisorptions.
2. Chemistry at gas-solid and fluid-solid interface: *in situ* infrared spectroscopy (ATR-IR and SEIRAS) of surface reaction mechanism including model oxygenates on nanoshaped metal oxide surfaces, water oxidation and oxygen reduction at electrode-electrolyte interface, CO₂ reduction at water-oxide interface.
3. Current projects: i). Nanoshaped ceria for oxygenates conversion; ii) photocatalytic reduction of CO₂ by water; iii). Nanostructured oxides as catalyst and catalyst support.

Publications (Over 40 Publications in Refereed Journals; 3 Invited Book Chapters) *Full Publication List follows CV*

Collaborators:

C. Barnes (University of Tennessee-Knoxville); B. Eichhorn (University of Maryland); H. J. Freund (Fritz-Harbor Institute); F. Geiger (Northwestern University); B. Jang (Texas A&M University-Commerce); S. Jackson (University of Glasgow); H. S. Kim (Northwestern University); W. Z. Li (University of Michigan Technology); M. Neurock (University of Virginia); P. C. Stair (Argonne National Laboratory/Northwestern University); C. T. Williams (University of South Carolina)

Graduate and Postdoctoral Advisors:

Ph.D. Advisors: Prof. Can Li and Prof. Qin Xin (Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China)
Prof. Antonio Guerrero-Ruiz (Institute of Catalysis and Petrochemistry, Madrid, Spain)

Postdoctoral Advisor: Prof. Peter C. Stair (Northwestern University/Argonne National Laboratory)

PUBLICATIONS

Zili Wu

Center for Nanophase Materials Sciences Division

Oak Ridge National Laboratory

Oak Ridge, TN 37831

wuzl@ornl.gov

Book Chapters

- Z. L. Wu, "Resonance Raman Spectroscopy Study of Supported Metal Oxide Catalysts: Structure Identification and Quantification," in *Advanced Characterization Techniques*, Eds., M. A. Banares and I. E. Wachs, *submitted 2012*.
- Z. L. Wu, H.-S. Kim, P. C. Stair, "Resonance Raman Spectroscopy - Θ -Al₂O₃-Supported Vanadium Oxide Catalysts as an Illustrative Example," Chapter 4 in *Metal Oxide Catalysis*, Eds., S. D. Jackson and J. S. J. Hargreaves: Wiley-VCH Verlag, Weinheim, Germany (2008).
- C. Li, Z. L. Wu, "Microporous Materials Characterized by Vibrational Spectroscopies," Chapter 11 in *Handbook of Zeolite Science and Technology*, Eds., S. M. Auerbach, K. A. Carrado, P. K. Dutta: Marcel Dekker, Inc., New York, NY (2003).

Peer-Reviewed Publications:

- Z. L. Wu, M. J. Li, S. H. Overbury, "A Raman spectroscopic study of the speciation of vanadia supported on ceria nanocrystals with defined surface planes", *ChemCatChem* 2012, published online, DOI: 10.1002/cctc.201200243.
- Z. L. Wu, V. Schwartz, M. J. Li, A. J. Rondinone, S. H. Overbury, "Support shape effect in metal oxide catalysis: ceria-nanoshape-supported vanadia catalysts for oxidative dehydrogenation of isobutene", *Journal of Physical Chemistry Letters* 2012, 3, 1517-1522.
- Z. L. Wu, M. J. Li, S. H. Overbury, "On the Structure Dependence of CO Oxidation over CeO₂ Nanocrystals with Well-Defined Surface Planes," *Journal of Catalysis* **285**, 61-73 (2012).
- Z. Y. Zhang, K. L. More, K. Sun, Z. L. Wu, W. Z. Li, "Preparation and Characterization of PdFe Nanoleaves as Electrocatalysts for Oxygen Reduction Reaction," *Chemistry of Materials* **23**(6), 1570-1577 (2011).
- Z. Y. Zhang, M. J. Li, Z. L. Wu, W. Z. Li, "Ultra-Thin PtFe-Nanowires as Durable Electrocatalysts for Fuel Cells, *Nanotechnology* **22**(1), 015602, (2011).
- Z. L. Wu, A. J. Rondinone, I. V. Ivanov, S. H. Overbury, "Structure of Vanadium Oxide Supported on Ceria by Multi-Wavelength Raman Spectroscopy," *Journal of Physical Chemistry C* **115**, 25368-25378 (2011).
- Z. L. Wu, S. Dai, S. H. Overbury, "Reply to Comment on Multiwavelength Raman Spectroscopic Study of Silica-Supported Vanadium Oxide Catalysts," *Journal of Physical Chemistry C* **115**(21), 10925-10928 (2011).
- M. J. Li, Z. L. Wu, S. H. Overbury, "CO Oxidation on Phosphate-Supported Au Catalysts: Effect of Support Reducibility on Surface Reactions," *Journal of Catalysis* **278**(1), 133-142 (2011).
- E. V. Formo, Z. L. Wu, S. M. Mahurin, S. Dai, "In Situ High Temperature Surface Enhanced Raman Spectroscopy for the Study of Interface Phenomena: Probing a Solid Acid on Alumina," *Journal of Physical Chemistry C* **115**(18), 9068-9073 (2011).
- J. C. Bauer, D. Mullins, M. J. Li, Z. L. Wu, E. A. Payzant, S. H. Overbury, S. Dai, "Synthesis of Silica Supported AuCu Nanoparticle Catalysts and The Effects of Pretreatment Conditions for the CO Oxidation Reaction," *Physical Chemistry Chemical Physics* **13**(7), 2571-2581 (2011).
- Z. L. Wu, M. J. Li, J. Howe, H. M. Meyer, S. H. Overbury, "Probing Defect Sites on CeO(2) Nanocrystals with Well-Defined Surface Planes by Raman Spectroscopy and O(2) Adsorption," *Langmuir* **26**(21), 16595-16606 (2010).

- Z. L. Wu, S. Dai, S. H. Overbury, "Multiwavelength Raman Spectroscopic Study of Silica-Supported Vanadium Oxide Catalysts," *Journal of Physical Chemistry C* **114**(1), 412-422 (2010).
- B. G. Burke, K. A. Williams, J. Chan, Z. L. Wu, A. A. Puzovskiy, D. B. Geohegan, "Raman Study of Fano Interference in p-Type Doped Silicon," *Journal of Raman Spectroscopy* **41**(12), 1759-1764 (2010).
- S. H. Zhou, Z. Ma, H. F. Yin, Z. L. Wu, B. Eichhorn, S. H. Overbury, and S. Dai Zhou, S. H.; Ma, Z.; Yin, H. F.; Wu, Z. L.; Eichhorn, B.; Overbury, S. H.; Dai, S., Low-Temperature Solution-Phase Synthesis of NiAu Alloy Nanoparticles via Butyllithium Reduction: Influences of Synthesis Details and Application As the Precursor to Active Au-NiO/SiO₂ Catalysts through Proper Pretreatment. *Journal of Physical Chemistry C* **113**(14), 5758-5765 (2009).
- S. H. Zhou, Z. Ma, G. A. Baker, A. J. Rondinone, Q. Zhu, H. M. Luo, Z. L. Wu, S. Dai, "Self-Assembly of Metal Oxide Nanoparticles into Hierarchically Patterned Porous Architectures Using Ionic Liquid/Oil Emulsions," *Langmuir* **25**(13), 7229-7233 (2009).
- H. Xie, Z. L. Wu, S. H. Overbury, C. D. Liang, V. Schwartz, "Investigation of The Selective Sites on Graphitic Carbons for Oxidative Dehydrogenation of Isobutene," *Journal of Catalysis* **267**(2), 158-166 (2009).
- Z. L. Wu, S. H. Zhou, H. G. Zhu, S. Dai, S. H. Overbury, "DRIFTS-QMS Study of Room Temperature CO Oxidation on Au/SiO₂ Catalyst: Nature and Role of Different Au Species," *Journal of Physical Chemistry C* **113**(9), 3726-3734. (2009).
- J. McGregor, Z. Huang, G. Shiko, L. F. Gladden, R. S. Stein, M. J. Duer, Z. Wu, P. C. Stair, S. Rugmini, S. D. Jackson, "The Role of Surface Vanadia Species in Butane Dehydrogenation over VO_x/Al₂O₃," *Catalysis Today* **142**(3-4), 143-151 (2009).
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- S. H. Zhou, H. F. Yin, V. Schwartz, Z. L. Wu, D. Mullins, B. Eichhorn, S. H. Overbury, S. Dai, "In Situ Phase Separation of NiAu Alloy Nanoparticles for Preparing Highly Active Au/NiO CO Oxidation Catalysts," *ChemPhysChem* **9**(17), 2475-2479 (2008).
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