

Jingguang G. Chen (Curriculum Vitae)

Current Positions: Thayer Lindsley Professor of Chemical Engineering,
Columbia University, New York, NY 10027
Senior Chemist, Chemistry Department, Brookhaven National Lab

Positions Held:

2012 – Present: Thayer Lindsley Professor of Chemical Engineering, Columbia University
2012 – Present: Joint Appointment at Chemistry Department, Brookhaven National Lab
2013 – Present: Guest Professor, Chemical Engineering, Tsinghua University, China
2012 – Present: Adjunct Professor, Chemical Engineering, University of Delaware
2008 – 2012: Claire D. LeClaire Professor of Chemical Engineering, University of Delaware
2009 – 2012: Co-Director, Energy Frontier Research Center on Biomass Conversion
2005 – 2012: Professor of Chemistry (courtesy appointment), University of Delaware
2008 – 2010: Interim Director, University of Delaware Energy Institute
2000 – 2007: Director, Center for Catalytic Science and Technology (CCST)
2002 – 2007: Professor of Chemical Engineering, University of Delaware
2002 – 2005: Professor of Materials Science and Engineering (courtesy appointment)
1998 – 2001: Associate Professor of Materials Science and Engineering and Chemical Engineering, University of Delaware
1994 – 1998: Spokesperson for Exxon U1A Beamline at Brookhaven National Laboratory
1990 – 1998: Staff Scientist, Exxon Corporate Research Laboratory, Annandale, New Jersey

Selected Awards:

George Olah Award in Hydrocarbon/Petroleum Chemistry, American Chemical Society (2015)
Giuseppe Parravano Memorial Award in Catalysis, Michigan Catalysis Society (2015)
Fellow, American Chemical Society (2013)
Herman Pines Award in Catalysis, Chicago Catalysis Club (2011)
Excellence in Undergraduate Advising and Mentoring, University of Delaware (2011)
Excellence in Catalysis Award, New York Catalysis Society (2008)
Fellow, American Vacuum Society (2008)
Excellence in Catalysis Award, Philadelphia Catalysis Club (2004)
Alexander von Humboldt Postdoctoral Fellow (Germany, 1988 – 1989)
Leybold-Heraeus Award (Leybold-Heraeus Corporation, 1987)
Russell and Siguard Varian Fellow (American Vacuum Society, 1986)
Graduate Student Award (American Vacuum Society Conference, 1986)
Andrew W. Mellon Predoctoral Fellow (University of Pittsburgh, 1985 – 1987)
USA-China Chemistry Graduate Program Fellowship (1982 – 1984)

Editorial Boards:

Associate Editor, *ACS Catalysis* (2016 – present)
Associate Editor, *Applied Surface Science* (2011 – 2015)
Editorial Board, *Surface Science Reports* (2004 – 2011)
Editorial Advisory Board, *Acta Physico-Chimica Sinica* (2009 – present)
Editorial Advisory Board, *Chinese Journal of Catalysis* (2007 – present)
Editorial Advisory Board, *Encyclopedia of Surface and Colloid Science* (2004 – 2008)
Editorial Advisory Board, *Surface Science* (2001 – 2003)
Editorial Advisory Board, *Langmuir* (1998 – 2000)

- Publication [#165] was selected as front cover of *ChemSusChem* in 2008
- Publication [#161] was Top Cited Article (2005-2010) in *Surface Science Reports*
- Publication [#126] was invited review on surface chemistry of metal carbides in *Chemical Reviews*
- Publication [#117] has been cited over 500 times for fundamental insights of electronic and chemical modification of subsurface bimetallic monolayers
- Publications [#94, 95] were featured in *News of the Week in Chemical & Engineering News in February 2002*
- Publication [#57] was invited review for NEXAFS analysis of transition metal compounds
- Publication [#48] was invited review on chemical properties of metal carbides and nitrides in *Chemical Reviews*

United States Patents:

- 1 “Selective Opening of Five and Six Membered Rings”, S. Hantzer, M.S. Touvelle and J.G. Chen, United States Patent, 5,811,624 (1998).
- 2 “Desulfurization and Aromatic Saturation of Feedstream Containing Condensed Refractory Organosulfur Heterocycles and Aromatics”, D.P. Klein, M.S. Touvelle, E.S. Ellis, C.W. Hudson, S. Hantzer, J.G. Chen, D.E.W. Vaughan, J.J. Schorfheide, W.C. Baird, G.B. McVicker, United States Patent, 5,925,239 (1999).
- 3 “Desulfurization and Ring Opening of Petroleum Streams”, G.B. McVicker, J.J. Schorfheide, W.C. Baird, Jr., M.S. Touvelle, M. Daage, D.P. Klein, E.S. Ellis, D.E.W. Vaughan and J.G. Chen, United States Patent, 5,928,498 (1998).
- 4 “Desulfurization Processes for Refractory Organosulfur Heterocycles”, W.C. Baird, Jr., G.B. McVicker, J.J. Schorfheide, D.P. Klein, S. Hantzer, M. Daage, M.S. Touvelle, E.S. Ellis, D.E.W. Vaughan and J.G. Chen, United States Patent, 5,935,420 (1999).
- 5 “Desulfurization and Ring Opening of Petroleum Streams”, G.B. McVicker, J.J. Schorfheide, W.C. Baird, Jr., M.S. Touvelle, M. Daage, D.P. Klein, E.S. Ellis, D.E.W. Vaughan and J.G. Chen, United States Patent, 6,103,106 (2000).
- 6 “Desulfurization of Petroleum”, G.B. McVicker, J.J. Schorfheide, W.C. Baird, Jr., M.S. Touvelle, M. Daage, D.P. Klein, E.S. Ellis, D.E.W. Vaughan and J.G. Chen, United States Patent, 6,193,877 (2001).
- 7 “Desulfurization of Petroleum Streams Containing Condensed Ring Heterocyclic Organosulfur Compounds”, D.P. Klein, M.S. Touvelle, E.S. Ellis, J.G. Chen, D.E.W. Vaughan, J.J. Schorfheide, W.C. Baird, G.B. McVicker, United States Patent, 6,221,240 (2001).
- 8 “Desulfurization Processes for Refractory Organosulfur Heterocycles”, W.C. Baird, Jr., G.B. McVicker, J.J. Schorfheide, D.P. Klein, S. Hantzer, M. Daage, M.S. Touvelle, E.S. Ellis, D.E.W. Vaughan and J.G. Chen, United States Patent, 6,245,221 (2001).
- 9 “Ring Opening with Group VIII Metal Catalysts Supported on Modified Substrate”, W.C. Baird, Jr., J.G. Chen and G.B. McVicker, United States Patent, 6,586,650 (2003).
- 10 “Method and Catalyst for Opening Naphthenic Rings of Naphthenic Ring-Containing Compounds”, W.C. Baird, Jr., D.P. Klein, M.S. Touvelle and J.G. Chen, United States Patent, 6,589,416 (2003).
- 11 “Ring Opening with Group VIII Metal Catalysts Containing Cracking Moderators”, W.C. Baird, Jr., J.G. Chen and G.B. McVicker, United States Patent, 6,623,625 (2003).
- 12 “Naphthene Ring Opening over a Ring Opening Catalyst Combination”, W.C. Baird, Jr., J.G. Chen and G.B. McVicker, United States Patent, 6,623,626 (2003).

13. "Regeneration of Hydrogen Sulfide Sorbents", J.G. Chen, L.D. Brown, W.C. Baird, Jr., G.B. McVicker, E.S. Ellis, M.S. Touvelle, D.P. Klein and D.E.W. Vaughan, United States Patent, 6,649,043 (2003).
14. "Naphthene Ring Opening over an Iridium Ring Opening Catalyst", W.C. Baird, Jr., D.P. Klein, J.G. Chen and G.B. McVicker, United States Patent, 6,683,020 (2003).
15. "Regeneration of Iron-Based Hydrogen Sulfide Sorbents", J.G. Chen, L.D. Brown, W.C. Baird, Jr., G.B. McVicker, E.S. Ellis, M.S. Touvelle, D.P. Klein and D.E.W. Vaughan, United States Patent, 6,723,230 (2004).
16. "PVD Supported Mixed Metal Oxide Catalysts", S. Chaturvedi, J.G. Chen, M.B. Clark, Jr. and A.M. Gaffney, United States Patent, 6,984,750 (2006).
17. "Method of Preparing Ethylene Glycol from Cellulose", T. Zhang, M. Zheng, N. Ji, A. Wang, Y. Shu, X. Wang, and J.G. Chen, United States Patent, 7,960,594 (2011).
18. "Bimetallic Alkylation Catalysts", A.M. Gaffney, P.J. Angevine, C.Y. Yeh, J.H. Koegler, and J.G. Chen, United States Patent, 8,105,968 (2012).
19. "Method of Producing Ethylene Glycol from Polyhydroxyl Compound", T. Zhang, M. Zheng, A. Wang, N. Ji, Y. J. Pang, Z. Tai, X. Wang, and J.G. Chen, United States Patent, 8,324,433 (2012).
20. "Methods of Using Tungsten Carbide Catalysts in Preparation of Ethylene Glycol", T. Zhang, N. Ji, M. Zheng, A. Wang, Y. Shu, X. Wang, and J.G. Chen, United States Patent, 8,692,032 (2014).
21. "Fuel Cell Catalyst Including Carbon Support Particles with Metal Carbide Layer and Catalytic Material and Fuel Cell Using the Same", B. Merzougui, M. Shao, L.V. Protsailo and J.G. Chen, United States Patent, 9,147,884 (2015).
22. "Electrocatalysts for Hydrogen Evolution and Oxidation Reactions", F. Jiao, Q. Lu, G.S. Hutchings and J.G. Chen, United States Patent, pending (#2016/0010228).

Publications in Refereed Journals:

1. J.G. Chen, J.E. Crowell and J.T. Yates, Jr., "Onset of Oxidation of Al(111) at Low Temperatures: A Study by EELS and AES", *Physical Review*, B33 (1986) 1436-1439.
2. J.E. Crowell, J.G. Chen and J.T. Yates, Jr., "Surface Sensitive Spectroscopic Study of the Interaction of Oxygen with Al(111): Low Temperature Chemisorption and Oxidation", *Surface Science*, 165 (1986) 37-64.
3. J.G. Chen, J.E. Crowell and J.T. Yates, Jr., "Assignment of a Surface Vibrational Mode by Chemical Means: Modification of the Lattice Modes of Al₂O₃ by a Surface Reaction with H₂O", *Journal of Chemical Physics*, 84 (1986) 5906-5909.
4. J.E. Crowell, J.G. Chen and J.T. Yates, Jr., "The Adsorption and Decomposition of Carboxylic Acids on Al(111)", *Journal of Electron Spectroscopy and Related Phenomena*, 39 (1986) 97-106.
5. J.G. Chen, J.E. Crowell and J.T. Yates, Jr., "An EELS and TPD Study of the Adsorption and Decomposition of Acetic Acids on the Al(111) Surface", *Surface Science*, 172 (1986) 733-753.
6. J.E. Crowell, J.G. Chen and J.T. Yates, Jr., "A Vibrational Study of the Adsorption and Decomposition of Formic Acid and Surface Formate on Al(111)", *Journal of Chemical Physics*, 85 (1986) 3111-3122.
7. J.G. Chen, T.P. Beebe, Jr., J.E. Crowell and J.T. Yates, Jr., "Reaction of Atomically Clean Aluminum and Chemically Modified Aluminum with Alkyl Halides", *Journal of the American Chemical Society*, 109 (1987) 1726-1729.
8. J.G. Chen, J.E. Crowell and J.T. Yates, Jr., "Differentiation of Single vs. Multiple

- Vibrational Excitation Processes on Surfaces: An EELS Investigation of the Al₂O₃ Vibrational Modes", *Physical Review* (Rapid Communication) B35 (1987) 5299-5302.
9. J.E. Crowell, J.G. Chen, D.M. Hercules and J.T. Yates, Jr., "The Adsorption and Thermal Decomposition of Water on Clean and Oxygen-Pre-dosed Al(111)", *Journal of Chemical Physics*, 86 (1987) 5804-5815.
 10. J.G. Chen, J.E. Crowell and J.T. Yates, Jr., "The Metal-Metal Oxide Interface: A Study of Thermally Activated Diffusion at the Ni/ Al₂O₃ Interface Using Electron Spectroscopies", *Surface Science*, 185 (1987) 373-393.
 11. J.G. Chen, J.E. Crowell and J.T. Yates, Jr., "Ni Cluster Chemistry on Al₂O₃: A Vibrational EELS Study Using Chemisorbed CO on a Model Catalyst: Ni/Al₂O₃/Al(111)", *Surface Science*, 187 (1987) 243-264.
 12. J.E. Crowell, J.G. Chen and J.T. Yates, Jr., "An Electron Spectroscopic Study of the Growth and Thermally Activated Diffusion of Ni Thin Films on Al(111) and Al₂O₃ /Al(111)", *Thin Solid Films*, 153 (1987) 341-347.
 13. L. Ng, J.G. Chen, P. Basu and J.T. Yates, Jr., "Electron Stimulated Decomposition of Alkyl and Fluoroalkyl Ethers Adsorbed on Al₂O₃", *Langmuir*, 3 (1987) 1161-1167.
 14. J.G. Chen, P. Basu, L. Ng and J.T. Yates, Jr., "A Comparative Study of the Reactivities of H₂O, CH₃OH and CH₃OCH₃ towards Al(111)", *Surface Science*, 194 (1988) 397-418.
 15. J.G. Chen, J.E. Crowell, P. Basu, L. Ng and J.T. Yates, Jr., "Dissociative Chemisorption of CO on the Ni Films Promoted by Al: Detection of a Precursor State to CO Dissociation by EELS", *Journal of Physical Chemistry*, 92 (1988) 2574-2579.
 16. P. Basu, J.G. Chen, L. Ng, M.L. Colaianni and J.T. Yates, Jr., "Fragmentation of Molecular Adsorbates by Electron and Ion Bombardment: Methoxy Chemistry on Al(111)", *Journal of Chemical Physics*, 89 (1988) 2406-2411.
 17. J.G. Chen, P. Basu, T.H. Ballinger and J.T. Yates, Jr., "A Transmission Infrared Spectroscopic Investigation of the Reaction of Dimethyl Ether with Alumina Surfaces", *Langmuir*, 5 (1989) 352-356.
 18. J.G. Chen, W. Erley and H. Ibach, "A FT-RAIRS Investigation of the Nature of the 3-Fold Bridge-CO Species on Ni(111)", *Surface Science*, 223 (1989) L891-896.
 19. J.G. Chen, W. Erley and H. Ibach, "A RAIRS Investigation of the Interaction between the Coadsorbed NO and Oxygen on Ni(111): Observation of a Substantial N-O Bond Strengthening", *Surface Science*, 224 (1989) 215-234.
 20. J.G. Chen, M.L. Colaianni, J.T. Yates, Jr. and G.B. Fisher, "Thermal Behavior of a Rh/Al₂O₃ Model Catalyst: The Disappearance of Surface Rh upon Heating", *Journal of Physical Chemistry*, 94 (1990) 5059-5062.
 21. J.G. Chen, W. Erley and H. Ibach, "A RAIRS Observation of the Local Interaction between the Coadsorbed NO and CO on Ni(111)", *Surface Science*, 227 (1990) 79-89.
 22. J.G. Chen, W. Erley and H. Ibach, "Significant N-O Bond Strengthening upon the Interaction of NO with Coadsorbed Oxygen on Ni(111)", *Vacuum*, 41 (1990) 74-75.
 23. W. Erley, J.G. Chen and D. Sander, "The Formation of Acetic Anhydride by Decomposition of Acetic Acid on Ni(111)", *Journal of Vacuum Science and Technology*, A8 (1990) 976-978.
 24. J.G. Chen, S. Lehwald, G. Kisters, E. Preuss and H. Ibach, "A Surface Stress Induced (1x1) to (5x1) Reconstruction of an Ir(100) Surface", *Journal of Electron Spectroscopy and Related Phenomena*, 54/55 (1990) 405-413.
 25. M.D. Weisel, J.G. Chen and F.M. Hoffmann, "Characterization of CO/H₂ Reaction Intermediate by FT-IRAS: Potassium Formate on Ru(001)", *Journal of Electron Spectroscopy and Related Phenomena*, 54/55 (1990) 787-794.
 26. J.G. Chen, M.L. Colaianni, W.H. Weinberg and J.T. Yates, Jr., "Direct Vibrational

- Detection of Surface Reaction Channels Leading to CO Dissociation and to Its Inhibition on Mo(110)", *Chemical Physics Letters*, 177 (1991) 113-117.
27. S. Lehwald, J.G. Chen, G. Kisters, E. Preuss and H. Ibach, "Surface Phonon Dispersion Investigation of the (1x1) to (5x1) Reconstruction of an Ir(100) Surface", *Physical Review*, B43 (1991) 3920-3927.
 28. G. Kisters, J.G. Chen, S. Lehwald and H. Ibach, "Adsorption of CO on the Unreconstructed and Reconstructed Ir(100) Surfaces", *Surface Science*, 245 (1991) 65-71.
 29. J.G. Chen, M.D. Weisel, J.H. Hardenbergh, F.M. Hoffmann, C.A. Mims and R.B. Hall, "Evidence for the Potassium-Promoted Activation of Methane on a K-Doped NiO/Ni(100) Surface", *Journal of Vacuum Science and Technology*, A9 (1991) 1684-1687.
 30. J.G. Chen, M.D. Weisel and R.B. Hall, "A Vibrational Investigation of the Stability, Morphology and Surface Reactivity of NiO on Ni(100)", *Surface Science*, 250 (1991) 159-168.
 31. R.B. Hall, J.G. Chen, J.H. Hardenbergh and C.A. Mims, "Reactivity of NiO and K-Doped NiO Thin Films on Ni(100) with Hydrogen and Methane", *Langmuir*, 7 (1991) 2548-2554.
 32. M.L. Colaianni, J.G. Chen, W.H. Weinberg and J.T. Yates, Jr., "The Adsorption and Dissociation of CO on Clean and Oxygen-Modified Mo(110) Surfaces", *Journal of the American Chemical Society*, 114 (1992) 3735-3743.
 33. J.G. Chen, D.A. Fischer, J.H. Hardenbergh and R.B. Hall, "A Fluorescence-Yield Near-Edge Spectroscopy (FYNES) Investigation of the Reaction Kinetics of NiO/Ni(100) with Hydrogen", *Surface Science*, 279 (1992) 13-22.
 34. M.L. Colaianni, J.G. Chen, W.H. Weinberg and J.T. Yates, Jr., "Oxygen on Mo(110): Low-Temperature Adsorption and High Temperature Oxidation", *Surface Science*, 279 (1992) 211-222.
 35. J.G. Chen, M.L. Colaianni, W.H. Weinberg and J.T. Yates, Jr., "The Cu/Al₂O₃/Al(111) Interface: Initial Film Growth and Thermally-Induced Diffusion of Copper into the Bulk", *Surface Science*, 279 (1992) 223-232.
 36. M.D. Weisel, J.G. Chen, F.M. Hoffmann, Y.-K. Sun and W.H. Weinberg, "A FT-IRAS Study of the Formation and Decomposition of Chemisorbed Formate on Clean and Potassium-Modified Ru(001)", *Journal of Chemical Physics*, 97 (1992) 9396-9411.
 37. M.L. Colaianni, J.G. Chen and J.T. Yates, Jr., "Facile Carbon Monoxide Dissociation on Copper: Promotion by Aluminum", *Journal of Physical Chemistry*, 97 (1993) 2707-2710.
 38. J.G. Chen, M.D. Weisel, Z.-M. Liu and J.M. White, "Effect of Carbon Modification on a Vanadium (110) Surface: Observation of Surface Reactivities characteristics of Platinum-Group Metals", *Journal of the American Chemical Society*, 115 (1993) 8875-8876.
 39. J.G. Chen, B.D. DeVries, J.T. Lewandowski, and R.B. Hall, "Direct Differentiation of Surface and Bulk Compositions of Powder Catalysts: Application of Electron-Yield and Fluorescence-Yield NEXAFS to Li_xNi_{1-x}O", *Catalysis Letters*, 23 (1994) 25-35.
 40. J.G. Chen, C.M. Kim, B. Fruhberger, B.D. DeVries and M.S. Touvelle, "A NEXAFS Determination of the Oxidation State of Vanadium Carbide on V(110): Observation of Charge Transfer from Vanadium to Carbon", *Surface Science*, 321 (1994) 145-155.
 41. C.M. Kim, B.D. DeVries, B. Fruhberger and J.G. Chen, "A HREELS and NEXAFS Characterization of Atomic and Molecular Oxygen Species on a Vanadium (110) Surface", *Surface Science*, 327 (1995) 81-92.

42. J.G. Chen, "Selective Activation of C-H and C=C Bonds on Metal Carbides: A Comparison of Reactions of n-Butane and 1,3-Butadiene on Vanadium Carbide Films on V(110)", *Journal of Catalysis*, 154 (1995) 80-90.
43. J.G. Chen, B.D. DeVries, B. Fruhberger C.M. Kim and Z.-M. Liu, "Spectroscopic Characterization of Thin Vanadium Carbide Films on a Vanadium (110) Surface: Formation, Stability and Reactivities", *Journal of Vacuum Science and Technology*, A13 (1995) 1600-1605.
44. R. Kapoor, S.T. Oyama, B. Fruhberger, B.D. DeVries and J.G. Chen, "Characterization of Early Transition Metal Carbides and Nitrides by NEXAFS", *Catalysis Letters*, 34 (1995) 179-189.
45. B. Fruhberger and J.G. Chen, "Modification of the Surface Reactivity of Mo(110) upon Carbide Formation", *Surface Science*, 342 (1995) 38-46.
46. B. Fruhberger and J.G. Chen, J. Eng, Jr., and B.E. Bent, "Reactivities of Carbon and Nitrogen-Modified Mo(110): A Comparison of Modification Effects by Surface and Interstitial Adatoms", *Journal of Vacuum Science and Technology*, A14 (1996) 1475-1481.
47. J.G. Chen, B. Fruhberger and M.L. Colaianni, "NEXAFS Characterization of Compositions and Reactivities of Transition Metal Oxides", *Journal of Vacuum Science and Technology*, A14 (1996) 1668-1673.
48. J.G. Chen, "Carbide and Nitride Overlayers on Early Transition Metal Surfaces: Preparation, Characterization and Reactivities", *Chemical Reviews*, 96 (1996) 1477-1498.
49. J.G. Chen and B. Fruhberger, "Similarities in the Decomposition and Dehydrogenation of Cyclohexene on (4x4)-C/Mo(110) and Pt(111)", *Surface Science*, 367 (1996) L102-110.
50. B. Fruhberger and J.G. Chen, "Reaction of Ethylene with Clean and Carbide-Modified Mo(110): Converting the Surface Reactivity of Mo to Pt-Group Metals", *Journal of the American Chemical Society*, 118 (1996) 11599-11609.
51. B. Fruhberger, J. Eng, Jr. and J.G. Chen, "Observation of Anomalous Reactivities of Ni/Pt(111) Bimetallic Surfaces", *Catalysis Letters*, 45 (1997) 85-92.
52. C.C. Yu, S. Ramanathan, B. Dhandapani, J.G. Chen and S.T. Oyama, "Bimetallic Nb-Mo Carbide Hydroprocessing Catalysts: Synthesis, Characterization and Activity Studies", *Journal of Physical Chemistry*, B 101 (1997) 512-518.
53. R. Kapoor, S.T. Oyama, B. Fruhberger and J.G. Chen, "NEXAFS Characterization and Reactivity Studies of Bimetallic Vanadium Molybdenum Oxynitride Hydrotreating Catalysts", *Journal of Physical Chemistry*, B 101 (1997) 1543-1547.
54. J. Eng, Jr., B.E. Bent, B. Fruhberger and J.G. Chen, "Studies of the Adsorption Geometry and Decomposition Mechanisms of Benzene on Clean and Carbide-Modified Mo(110) Surfaces Using Vibrational Spectroscopy", *Journal of Physical Chemistry*, B 101 (1997) 4044-4054.
55. M.E. Castro, J.G. Chen, R.B. Hall and C.A. Mims, "Reactions of Hot Methyl Groups with Surface Hydrogen during CH₃-I Bond Scission on Ni(111)", *Journal of Physical Chemistry*, B 101 (1997) 4060-4070.
56. D.-H. Sun, B.E. Bent and J.G. Chen, "Chemistry of Cyclopentadiene on a Cu(100) Surface: Detection of cyclopentadienyl (C₅H₅) species as reaction intermediates", *Journal of Vacuum Science and Technology*, A15 (1997) 1581-1585.
57. J.G. Chen, "NEXAFS Investigations of Transition Metal Oxides, Nitrides, Carbides, Sulfides and Other Interstitial Compounds", *Surface Science Reports*, 30 (1997) 1-152.

58. A.V. Teplyakov, A.B. Gurevich, M.X. Yang, B.E. Bent and J.G. Chen, "NEXAFS and TPD Studies of Molecular Adsorption of Hydrocarbons on Cu(100): Segmental Correlations with the Heats of Adsorption", *Surface Science*, 396 (1998) 340-348.
59. V.S. Lusvardi, M.A. Barteau, J.G. Chen, J. Eng, Jr., B. Fruhberger and A.V. Teplyakov, "A NEXAFS Investigation of the Reduction and Reoxidation of TiO₂(001)", *Surface Science*, 397 (1998) 237-250.
60. A.V. Teplyakov, B.E. Bent, J. Eng, Jr and J.G. Chen, "Vibrational Mode-Softening of Alkanes on Clean and Modified Cu and Mo Surfaces: Absence of a Simple Correlation with Thermal Desorption Temperature", *Surface Science*, 399 (1998) L342-L350.
61. J. Eng, Jr., B.E. Bent, B. Fruhberger and J.G. Chen, "Modifying Surface Reactivities by a Carbide Overlayer: A Vibrational Study of the Reaction Mechanisms of Cyclohexene and 1,3-Cyclohexadiene on Mo(110) and (4x4)-C/Mo(110) Surface", *Langmuir*, 14 (1998) 1301-1311.
62. A.V. Teplyakov, A.B. Gurevich, E.R. Garland, B.E. Bent and J.G. Chen, "Mechanisms of Dehydrocyclization of 1-hexene to Benzene on Cu₃Pt(111): Identification of 1,3,5-hexatriene as Reaction Intermediate", *Langmuir*, 14 (1998) 1337-1344.
63. Y. Luo, D. Slater, M. Han, J. Moryl, R.M. Osgood, Jr. and J.G. Chen, "In Situ Investigation of the Surface Chemistry of Atomic Layer Epitaxial Growth of II-VI Semiconductor Thin Films", *Langmuir*, 14 (1998) 1493-1499.
64. J.G. Chen, B. Fruhberger, J. Eng, Jr. and B.E. Bent, "Controlling Surface Reactivities of Transition Metals by Carbide Formation", *Journal of Molecular Catalysis A*, 131 (1998) 285-299.
65. I.M. Abdelrehim, K. Pelhos, T.E. Madey, J. Eng, Jr. and J.G. Chen, "A Survey of Acetylene Cyclization on Single Crystals, Supported Particles, and Bimetallic Surfaces: New Cyclization Studies on Bimetallic Pd/W(211)", *Journal of Molecular Catalysis A*, 131 (1998) 107-120.
66. B. Dhandapani, S. Ramanathan, C.C. Yu, S.T. Oyama and J.G. Chen, "Synthesis, Characterization and Reactivity Studies of Supported Mo₂C with Phosphorous Additive", *Journal of Catalysis*, 176 (1998) 61-67.
67. J. Eng, Jr. and J.G. Chen, "Reaction Pathways of Cis- and Trans-2-Butene on Mo(110) and C/Mo(110): Selective Activation of α and β C-H Bonds", *Surface Science*, 414 (1998) 374-388.
68. J.G. Chen, J. Eng, Jr. and S.P. Kelty, "NEXAFS Determination of Electronic and Catalytic Properties of Transition Metal Carbides and Nitrides: From Single Crystal Surfaces to Powder Catalysts", *Catalysis Today*, 43 (1998) 147-158.
69. J. Eng, Jr., B.E. Bent, B. Fruhberger and J.G. Chen, "A Vibrational Study of the Activation Sequence of Carbon-Hydrogen and Carbon-Carbon Bond of Isobutene and 1-Butene on Mo(110) and (4x4)-C/Mo(110) Surfaces", *Catalysis Letters*, 54 (1998) 133-140.
70. M. Han, Y. Luo, D. Slater, J. Moryl, R.M. Osgood, Jr. and J.G. Chen, "A NEXAFS Study of Atomic Layer Epitaxy: the Chemistry of the Growth of CdS layers on a ZnSe(100)", *Surface Science*, 415 (1998) 251-263.
71. J. Eng, Jr., J.G. Chen, I.M. Abdelrehim and T.E. Madey, "Vibrational Study of the Interaction of Acetylene and Benzene on Clean and Carbide-Modified W(211) Surfaces", *Journal of Physical Chemistry B*, 102 (1998) 9687-9696.
72. I.M. Abdelrehim, T.E. Madey, K. Pelhos, J. Eng, Jr. and J.G. Chen, "Reaction Pathways of Acetylene on Pd/W(211): A TPD and HREELS Investigation", *Journal of Physical Chemistry B*, 102 (1998) 9697-9707.

73. S.P. Kelty, J.G. Chen, R.R. Chianelli, J. Ren and M.-H. Whangbo, "Characterization of the RuS₂ (100) Surface by STM, AFM and NEXAFS Measurements and Electronic Band Structure Calculations", *Journal of Physical Chemistry B*, 103 (1999) 4649-4655.
74. Y.L. Soo, S. Huang, Y.H. Kao, J.G. Chen, and S.L. Hulbert, "Local Structures and Interface Morphology of InGaAsN Thin Films Grown on GaAs", *Physical Review B*, 60 (1999) 13605-13611.
75. I. Popova, V.Y. Zhukov, J.T. Yates, Jr. and J.G. Chen, "Electron Stimulated Oxidation of Al(111) in H₂O Vapor – Orientation Effects in the Al₂O₃ Thin Film", *Journal of Applied Physics*, 86 (1999) 7156-7159.
76. A.B. Gurevich, B.E. Bent, A.V. Teplyakov and J.G. Chen, "A NEXAFS Investigation of the Formation and Decomposition of CuO and Cu₂O Thin Films on Cu(100)", *Surface Science*, 442 (1999) L971-L976.
77. H. Kwon, L.T. Thompson, J. Eng, Jr. and J.G. Chen, "n-Butane Dehydrogenation over Vanadium Carbides: Correlating Catalytic and Electronic Properties", *Journal of Catalysis*, 190 (2000) 60-68.
78. A.B. Sherrill, V.S. Lusvardi, J. Eng, Jr. J.G. Chen and M.A. Barteau, "NEXAFS Investigation of Benzaldehyde Reductive Coupling to Form Stilbene on Reduced Surfaces of TiO₂(001)", *Catalysis Today*, 63 (2000) 43-51.
79. V. Schwartz, S.T. Oyama and J.G. Chen, "Supported Bimetallic Nb-Mo Carbides: Synthesis, Characterization and Reactivity", *Journal of Physical Chemistry B*, 104 (2000) 8800-8806.
80. V. Schwartz, V.L. Teixeira da Silva, J.G. Chen and S.T. Oyama, "Mechanism of HDN over Mo and Nb-Mo Carbide Catalysts", *Studies in Surface Science and Catalysis*, 130 (2000) 467-472.
81. K.J. Roe, J. Kolodzey, C.P. Swann, M.W. Tsao, J.F. Rabolt, J.G. Chen and G.R. Brandes, "The Electrical and Optical Properties of Thin Film Diamond Implanted With Silicon", *Applied Surface Science*, 175/176 (2001) 468-473.
82. J.W. Medlin, A.B. Sherrill, J.G. Chen and M.A. Barteau "Experimental and Theoretical Probes of the Structure of Oxametallacycle Intermediates Derived from 1-Epoxy-3butene on Ag(110)", *Journal of Physical Chemistry B*, 105 (2001) 3769-3775.
83. N. Liu, M.T. Buelow, S. Rykov, and J.G. Chen, "Modifying Surface Reactivity by Carbide Formation: Reaction Pathways of Cyclohexene over Clean and Carbide-Modified W(111)", *Journal of Physical Chemistry B*, 105 (2001) 3894-3902.
84. R. Radhakrishnan, S.T. Oyama, K. Asakura and J.G. Chen, "Electron Transfer Effects in Ozone Decomposition on Supported Manganese Oxide", *Journal of Physical Chemistry B*, 105 (2001) 4245-4253.
85. W. Li, S.I. Shah, D. Guerin, J.G. Chen and H.H. Hwu, "Growth and Characterization of Epitaxial Ge_{1-x}C_x Thin Films on Si(100)", *Journal of Vacuum Science and Technology*, A19 (2001) 2617-2621.
86. N. Liu, S.A. Rykov, and J.G. Chen, "A Comparative Surface Science Study of Carbide and Oxycarbide: The Effect of Oxygen Modification on the Surface Reactivities of Tungsten Carbide (111)", *Surface Science*, 487 (2001) 107-117.
87. M. Zhang, H.H. Hwu, M.T. Buelow, J.G. Chen, T.H. Ballinger and P.J. Andersen, "Decomposition of NO on Tungsten Carbide and Molybdenum Carbide Surfaces", *Catalysis Letters*, 77 (2001) 29-34.
88. H.H. Hwu, J.G. Chen, K. Kourtakis and J.G. Lavin, "Potential Application of Tungsten Carbide as Electrocatalysts: I. Decomposition of Methanol over Carbide Modified W(111)", *Journal of Physical Chemistry B*, 105 (2001) 10037-10040.

89. H.H. Hwu, B.D. Polizzotti and J.G. Chen, "Potential Application of Tungsten Carbide as Electrocatalysts: II. Co-adsorption of Water and CO on Carbide Modified W(111)", *Journal of Physical Chemistry B*, 105 (2001) 10045-10053.
90. A. Kuznetsova, I. Popova, J.T. Yates, Jr., M.J. Bronokowski, C.B. Huffman, J. Liu, R.E. Smalley, H.H. Hwu and J.G. Chen, "Oxygen-Containing Functional Groups on Single-Wall Carbon Nanotubes – NEXAFS and Vibrational Spectroscopic Studies", *Journal of the American Chemical Society*, 123 (2001) 10699-10704.
91. N. Liu and J.G. Chen, "Synergistic Effect in the Dehydrogenation of Cyclohexene on C/W(111) Surfaces Modified by Submonolayer Coverage Pt", *Catalysis Letters*, 77 (2001) 35-40.
92. A.B. Sherrill, J.W. Medlin, J.G. Chen and M.A. Barteau, "NEXAFS Investigations of Cyclooctatetraene on TiO₂(001)", *Surface Science*, 492 (2001) 203-213.
93. M. Daage, G. B. McVicker, M. S. Touvelle, C. W. Hudson, D. P. Klein, B.R. Cook, J. G. Chen, S. Hantzer, D. E. W. Vaughan and E. S. Ellis, *Studies in Surface Science and Catalysis*, 135 (2001).
94. N.A. Khan, H.H. Hwu and J.G. Chen, "Low-Temperature HDS of Thiophene on Ni/Pt(111) Bimetallic Surfaces with Monolayer Ni Coverage", *Journal of Catalysis*, 205 (2002) 259-265.
95. H.H. Hwu, J. Eng, Jr., and J.G. Chen, "Ni/Pt(111) Bimetallic Surfaces: Unique Chemistry at Monolayer Ni Coverage", *Journal of the American Chemical Society*, 124 (2002) 702-709 (*Featured as News of the Week in Chemical & Engineering News on Feb. 8 2002*).
96. B.D. Polizzotti, H.H. Hwu and J.G. Chen, "The Effect of Carbide Surface Structure: Different Reaction Pathways of Cyclohexene on C/W(110) and C/W(111)", *Surface Science*, 520 (2002) 97-110.
97. G. B. McVicker, M. Daage, M. S. Touvelle, C. W. Hudson, D. P. Klein, W. C. Baird, Jr., B.R. Cook, J. G. Chen, S. Hantzer, D. E. W. Vaughan, E. S. Ellis and O. C. Feeley, "Selective Ring Opening of Naphthenic Molecules", *Journal of Catalysis*, 210 (2002) 137-148.
98. M. Zhang, H.H. Hwu, M.T. Buelow, J.G. Chen, T.H. Ballinger, P.J. Andersen and D.R. Mullins, "Decomposition Pathways of NO on Carbide and Oxycarbide-Modified W(111) Surfaces", *Surface Science*, 522 (2003) 112-122.
99. N. Liu, K. Kourtakis and J.C. Figueroa, J.G. Chen, "Potential Application of Tungsten Carbide as Electrocatalysts: III. Reactions of Methanol, Water, and Hydrogen on Pt-Modified C/W(111) Surfaces", *Journal of Catalysis*, 215 (2003) 254-263.
100. H.H. Hwu and J.G. Chen, "Potential Application of Tungsten Carbide as Electrocatalysts: IV. Reactions of Methanol, Water, and Carbon Monoxide over Carbide-Modified W(110)", *Journal of Physical Chemistry B*, 107 (2003) 2029-2039.
101. J. R. Kitchin, M.A. Barteau and J.G. Chen, "A Comparison of Gold and Molybdenum Nanoparticles on TiO₂(110) 1×2 Reconstructed Single Crystal Surfaces", *Surface Science*, 526 (2003) 323-331.
102. N.A. Khan and J.G. Chen, "Correlating Mechanical Strain with Low-Temperature Hydrogenation Activity on Submonolayer Ni/W(110) Surfaces", *Journal of Physical Chemistry B*, 107 (2003) 4334-4341.
103. H.H. Hwu and J.G. Chen, "Reactions of Methanol and Water on Carbide Modified Mo(110)", *Surface Science*, 536 (2003) 75-87.
104. H.H. Hwu and J.G. Chen, "Potential Application of Tungsten Carbides as Electrocatalysts", *Journal of Vacuum Science and Technology*, A21 (2003) 1488-1493.

105. N.A. Khan and J.G. Chen, "Using Chemical Probes to Investigate Properties of Monolayer Metal Thin Films", *Journal of Vacuum Science and Technology*, A21 (2003) 1302-1306.
106. W. Chen, I. Ermanoski, Q. Wu, T.E. Madey, H.H. Hwu and J.G. Chen, "Adsorption and Decomposition of Acetylene on Planar and Faceted Ir(210)", *Journal of Physical Chemistry B*, 107 (2003) 5231-5242.
107. A.B. Sherrill, H. Idriss, M.A. Barteau and J.G. Chen, "Adsorption and Reaction of Acrolein on Titanium Oxide Single Crystal Surfaces: Coupling versus Condensation", *Catalysis Today*, 85 (2003) 321-331.
108. J.R. McCormick, J.R. Kitchin, M.A. Barteau and J.G. Chen, "A Four-Point Probe (FPP) Correlation of Oxygen Sensitivity to Changes in Surface Resistivity of TiO₂(001) and Pd-Modified TiO₂(001)", *Surface Science*, 545 (2003) L741-746.
109. H.H. Hwu and J.G. Chen, "Substrate-Dependent Reaction Pathways of Ethylene on Clean and Carbide-Modified W(110) and W(111)", *Journal of Physical Chemistry B*, 107 (2003) 11467-11474.
110. J.R. Kitchin, N.A. Khan, M.A. Barteau, J.G. Chen and T.E. Madey, "Elucidation of the Active Surface and Origin of the Weak Metal-Hydrogen Bond on Ni/Pt(111) Bimetallic Surfaces: A Surface Science and Density Functional Theory Study", *Surface Science*, 544 (2003) 295-308.
111. W. Li, Y. Wang, H. Lin, S.A. Rykov, S. I. Shah, C. P. Huang, D. J. Doren, J. G. Chen and M.A. Barteau, "Band Gap Tailoring of Nd³⁺ Doped TiO₂ Nanoparticles", *Applied Physics Letters*, 83 (2003) 4143-4145.
112. M.B. Zellner, R.W. Birkmire, E. Eser, W.N. Shafarman, and J.G. Chen, "Activation Energy and Diffusion Mechanism of Na in CIGS Thin Film Solar Cells", *Progress in Photovoltaics: Research and Applications*, 11 (2003) 543-548.
113. N.A. Khan and J.G. Chen, "Thiophene HDS Chemistry on Monolayer Ni Films on W(110) and Ru(0001)", *Journal of Molecular Catalysis A*, 208 (2004) 225-232.
114. H.H. Hwu, B. Fruhberger and J.G. Chen, "Different Modification Effects of Carbide and Graphitic Carbon on Ni Surfaces", *Journal of Catalysis*, 221 (2004) 170-177.
115. H.H. Hwu and J.G. Chen, "Chemical Properties of Carbon-Modified Titanium: Reaction Pathways of Cyclohexene and Ethylene over Ti(0001) and C/Ti(0001)", *Surface Science*, 557 (2004) 144-158
116. N.A. Khan, M.B. Zellner and J.G. Chen, "Cyclohexene as a Probe for the Low-Temperature Hydrogenation Activity of Pt/Ni(111) Bimetallic Surfaces", *Surface Science*, 556 (2004) 87-100.
117. J.R. Kitchin, J.K. Norskov, M.A. Barteau and J.G. Chen, "Modification of the Surface Electronic and Chemical Properties of Pt(111) by Subsurface 3d Transition Metals", *Journal of Chemical Physics*, 120 (2004) 10240-10246.
118. N.A. Khan, M.B. Zellner, L.E. Murillo and J.G. Chen, "A Comparison of Similarities and Differences in the Activities of Pt/Ni(111) and Ni/Pt(111)", *Catalysis Letters*, 95 (2004) 1-6.
119. M.B. Zellner and J.G. Chen, "Synthesis, Characterization and Surface Science Reactivity of Tungsten Carbide (WC) PVD Films", *Surface Science*, 569 (2004) 89-98.
120. N.A. Khan, L.E. Murillo and J.G. Chen, "Observation of Novel Low-Temperature Hydrogenation Activity on Co/Pt(111) Surfaces", *Journal of Physical Chemistry B*, 108 (2004) 15748-15754.
121. J.R. Kitchin, J.K. Norskov, M.A. Barteau and J.G. Chen, "The Role of Strain and Ligand Effects in the Modification of the Electronic and Chemical Properties of Bimetallic Surfaces", *Physical Review Letters*, 93 (2004) 156801.

122. J.R. McCormick, B. Zhao, S.A. Rykov, H. Wang and J.G. Chen, "Thermal Stability of Flame-Synthesized TiO₂ Nanoparticles", *Journal of Physical Chemistry B*, 108 (2004) 17398-17402.
123. A.M. Gaffney, S. Chaturvedi, M.B. Clark, S. Han, S.A. Rykov and J.G. Chen, "Characterization and Catalytic Studies of PVD Synthesized Mo/V/Nb/Te Oxide Catalysts", *Journal of Catalysis*, 229 (2005) 12-23.
124. H.H. Hwu, M.B. Zellner, and J.G. Chen, "The Chemical and Electronic Properties of Oxygen-Modified C/Mo(110): a Model System for Molybdenum OxyCarbides", *Journal of Catalysis*, 229 (2005) 30-44.
125. B. Zhao, K. Uchikawa, C. Ni, J.R. McCormick, J.G. Chen and H. Wang, "Ultrafine Anatase TiO₂ Nanoparticles Produced in Premixed Ethylene Stagnation Flames at 1 atm", *Proceedings of the Combustion Institute*, 30 (2005) 2569-2576.
126. H.H. Hwu and J.G. Chen, "Surface Chemistry of Transition Metal Carbides", *Chemical Reviews*, 105 (2005) 185-212.
127. E.C. Weigert, J. South and J.G. Chen, "Multifunctional Composites Containing Molybdenum Carbides as Potential Electrocatalysts", *Catalysis Today*, 99 (2005) 285-290.
128. M.B. Zellner and J.G. Chen, "Surface Science and Electrochemical Studies of W₂CPVD and WC Films as Potential Electrocatalysts", *Catalysis Today*, 99 (2005) 299-307.
129. J.K. Norskov, T. Bligaard, A. Logadottir, J.R. Kitchin, J.G. Chen, S. Pandalov and U. Stimming, "Trends in the Exchange Current for Hydrogen Evolution", *Journal of the Electrochemical Society*, 152 (2005) J23-J26.
130. J.R. Kitchin, J.K. Norskov, M.A. Barteau and J.G. Chen, "Trend in the Chemical Properties of Early Transition Metal Carbide Surfaces: A Density Functional Study", *Catalysis Today*, 105 (2005) 66-73.
131. M.B. Zellner and J.G. Chen, "Potential Application of Tungsten Carbides as Electrocatalysts: Synergistic Effect by Supporting Pt on C/W(110) for the Reactions of Methanol, Water, and CO", *Journal of the Electrochemical Society*, 152 (2005) A1483-A1494.
132. E.C. Weigert, N.A. Smith, B.G. Willis and J.G. Chen, "PVD Synthesis and Characterization of Pt-Modified Molybdenum Carbides as Potential Electrocatalysts", *Solid State and Electrochemical Letters*, 8 (2005) A337-A340.
133. M.B. Zellner, A.M. Goda, O. Skoplyak, M.A. Barteau and J.G. Chen, "Trends in the Adsorption and Decomposition of Hydrogen and Ethylene on Monolayer Metal Films: A Combined DFT and Experimental Study", *Surface Science*, 583 (2005) 281-296.
134. L.E. Murillo, N.A. Khan and J.G. Chen, "The Effect of Hydrocarbon Structure and Chain Length on the Low-Temperature Hydrogenation Activity on Ni/Pt(111) Bimetallic Surfaces", *Surface Science*, 594 (2005) 27-42.
135. M.B. Zellner and J.G. Chen, "Supporting Monolayer Pt on W(110) and C/W(110): Modification Effects on the Reaction Pathways of Cyclohexene", *Journal of Catalysis*, 235 (2005) 393-402.
136. M.B. Zellner, H.H. Hwu and J.G. Chen, "Comparative Studies of Methanol Decomposition on Carbide-Modified V(110) and Ti(0001)", *Surface Science*, 598 (2005) 185-199.
137. N.A. Khan, L.E. Murillo, Y. Shu, J.G. Chen, "Correlating Low-Temperature Hydrogenation Activity of Co/Pt(111) Bimetallic Surfaces to Supported Co/Pt/ γ -Al₂O₃ Catalysts", *Catalysis Letters*, 105 (2005) 233-238.

138. O. Skoplyak, M.A. Barteau and J.G. Chen, "Reforming of Oxygenates for H₂ Production: Correlating Reactivity of Ethylene Glycol and Ethanol on Pt(111) and Ni/Pt(111) with Surface *d*-band Center", *Journal of Physical Chemistry B*, 110 (2006) 1686-1694.
139. S. Wang, W. Lin, Y. Z., Y. Xie, J.G. Chen, "Preparation and Catalytic Activity of Monolayer Dispersed Pt/Ni Bimetallic Catalysts for C=C and C=O Hydrogenation", *Chinese Journal of Catalysis*, 27 (2006) 301-303.
140. A. M. Goda, M. A. Barteau, and J. G. Chen, "Correlating Electronic Properties of Bimetallic Surfaces with Reaction Pathways of C2 Hydrocarbons", *Journal of Physical Chemistry B*, 110 (2006) 11823-11831.
141. S. Buzby, M. A. Barakat, H. Lin, C. Ni and S. Ismat Shah, S. A. Rykov, J.G. Chen, "Visible Light Photocatalysis with Nitrogen Doped Titanium Dioxide NanoParticles Prepared by Plasma Assisted Chemical Vapor Deposition", *Journal of Vacuum Science and Technology B*, 24 (2006) 1210-1214.
142. C.A. Menning, H.H. Hwu, and J.G. Chen, "Experimental and Theoretical Investigation of the Stability of Pt-3d-Pt(111) Bimetallic Surfaces under Oxygen Environment", *Journal of Physical Chemistry B*, 110 (2006) 15471-15477.
143. J.K. Norskov, T. Bligaard, A. Logadottir, J.R. Kitchin, J.G. Chen, S. Pandalov and U. Stimming, "Response to Comments on Trends in the Exchange Current for Hydrogen Evolution", *Journal of the Electrochemical Society*, 153 (2006) L33-L33.
144. W. Huang, J.R. McCormick, R.F. Lobo, and J.G. Chen, "Selective Hydrogenation of Acetylene in the Presence of Ethylene on Zeolite-Supported Bimetallic Catalysts", *Journal of Catalysis*, 246 (2007) 40-51.
145. S. Wang, W. Lin, Y.X. Zhu, Y. Xie, J.R. McCormick, W. Huang, and J.G. Chen, "Pd-Based Bimetallic Catalysts Prepared by Replacement Reactions", *Catalysis Letters*, 114 (2007) 169-173.
146. M.S. Angelo, B.E. McCandless, R.W. Birkmire, S.A. Rykov and J.G. Chen, "Contact Wetting Angle as a Diagnostic Technique for Processing CdTe/CdS Solar Cells", *Progress in Photovoltaics: Research and Applications*, 15 (2007) 93-111.
147. L.E. Murillo, A.M. Goda and J.G. Chen, "Selective Hydrogenation of C=O Bond in Acrolein through Architecture of Bimetallic Surface Structures", *Journal of the American Chemical Society*, 129 (2007) 7101-7105.
148. S. Wang, W. Lin, Y.X. Zhu, Y. Xie, J.G. Chen, "Preparation and Catalytic Performance of Monolayer Dispersed Pd/Ni Bimetallic Catalysts for Hydrogenation", *Chinese Journal of Catalysis*, 28 (2007) 676-680.
149. E.C. Weigert, A.L. Stottlemeyer, M.B. Zellner and J.G. Chen, "Tungsten Monocarbide as Potential Replacement of Platinum for Methanol Electrooxidation", *Journal of Physical Chemistry C*, 111 (2007) 14617-14620.
150. D.M. Wang, C.P. Huang, J.G. Chen, H.Y. Lin, and S.I. Shah, "Reduction of Perchlorate in Dilute Aqueous Solution over Monometallic Nanocatalysts" Exemplified by Tin", *Separation and Purification Technology*, 58 (2007) 129-137.
151. W. Huang, W. Pyrz, R.F. Lobo, and J.G. Chen, "Selective Hydrogenation of Acetylene in the Presence of Ethylene on K⁺-β-Zeolite Supported Pd and PdAg Catalysts", *Applied Catalysis A*, 333 (2007) 254-263.
152. O. Skoplyak, M.A. Barteau and J.G. Chen, "Experimental and Theoretical Study of the Trend in the Reactivity of Methanol on Co/Pt(111) and Ni/Pt(111) Bimetallic Surfaces", *Journal of Chemical Physics*, 127 (2007) 114707.
153. E.C. Weigert, M.B. Zellner, A.L. Stottlemeyer and J.G. Chen, "A Combined Surface Science and Electrochemical Study of Tungsten Carbides as Anode Electrocatalysts", *Topics in Catalysis*, 46 (2007) 349-357.

154. D.M. Wang, S.I. Shah, J.G. Chen and C.P. Huang, "Catalytic Reduction of Perchlorate by H₂ Gas in Dilute Aqueous Solutions", *Separation and Purification Technology*, 60 (2008) 14-21.
155. E.C. Weigert, M.P. Humbert, Z.J. Mellinger, Q. Ren, T.P. Beebe, Jr., L. Bao, and J.G. Chen, "PVD Synthesis of Tungsten Monocarbide Thin Films on Different Carbon Substrates", *Journal of Vacuum Science and Technology*, A26 (2008) 23-28.
156. S. Wang, J. He, J. Xie, Y.X. Zhu, Y. Xie, J.G. Chen, "Synthesis of Bimetallic System Using Replacement Reactions", *Applied Surface Science*, 254 (2008) 2102-2109.
157. L.E. Murillo and J.G. Chen, "A Comparative Study of the Adsorption and Hydrogenation of Acrolein on Pt(111), Ni(111) Film and Pt-Ni-Pt(111) Bimetallic Surfaces", *Surface Science*, 602 (2008) 919-931.
158. W. Huang, R.F. Lobo and J.G. Chen, "Characterization of Na⁺-β-Zeolite Supported Pd and PdAg Bimetallic Catalysts Using EXAFS, TEM and Flow Reactor", *Journal of Molecular Catalysis A*, 283 (2008) 158-165.
159. K. Beadle, R. Gupta, A. Matthew, J.G. Chen, and B.G. Willis, "CVD Synthesis of Phase-Rich WC Thin Films on Silicon and Carbon Substrates", *Thin Solid Films*, 516 (2008) 3847-3854.
160. Y. Shu, L.E. Murillo, J.P. Bosco, W. Huang, A.I. Frenkel, and J.G. Chen, "The Effect of Impregnation Sequence on the Hydrogenation Activity and Selectivity of Supported PtNi Bimetallic Catalysts", *Applied Catalysis A*, 339 (2008) 169-179.
161. J.G. Chen, C.A. Menning and M.B. Zellner, "Monolayer Bimetallic Surfaces: Experimental and Theoretical Studies of Trends in the Electronic and Chemical Properties", (*Invited Review*), *Surface Science Reports*, 63 (2008) 201-254.
162. Z.J. Mellinger, E.C. Weigert, A.L. Stottlemeyer and J.G. Chen, "Enhancing the CO Tolerance of PEM Fuel Cell Electrocatalysts: Surface Science and Electrochemical Characterization of Pt-Modified Tungsten Carbide (WC) Thin Films", *Electrochemical and Solid State Letters*, 11 (2008) B63-B67.
163. C.A. Menning, and J.G. Chen, "Thermodynamics and Kinetics of Oxygen-Induced Segregation of 3d Metals in Pt-3d-Pt(111) and Pt-3d-Pt(100) Bimetallic Structures", *Journal of Chemical Physics*, 128 (2008) 164703.
164. M.P. Humbert, L.E. Murillo, and J.G. Chen, "Rational Design of Pt-Based Bimetallic Catalysts with Enhanced Hydrogenation Activity", *ChemPhysChem*, 9 (2008) 1262-1264.
165. O. Skoplyak, M.A. Barteau and J.G. Chen, "Enhancing H₂ Production from Glycerol Using Bimetallic Surfaces", *ChemSusChem*, 1 (2008) 524-526 (*Journal Cover*).
166. R. Mahmudov, Y. Shu, S.A. Rykov, J.G. Chen, and C.P. Huang, "The Reduction of Perchlorate by Novel Hydrogenation Catalysts", *Applied Catalysis B*, 81 (2008) 78-87.
167. M.P. Humbert and J.G. Chen, "Correlating Hydrogenation Activity with Binding Energies of Hydrogen and Cyclohexene on M/Pt(111) (M = Fe, Co, Ni, Cu) Bimetallic Surfaces", *Journal of Catalysis*, 257 (2008) 297-306.
168. L.E. Murillo and J.G. Chen, "Adsorption and Reaction of Propanal, 2-Propenol and 1-Propanol on Ni/Pt(111) Bimetallic Surfaces", *Surface Science*, 602 (2008) 2412-2420.
169. A. M. Goda, M. Neurock, M. A. Barteau, and J. G. Chen, "Effect of hydrocarbon chain length and cyclization on the adsorption strength of unsaturated hydrocarbons on Pt/3d bimetallic surfaces", *Surface Science*, 602 (2008) 2513-2523.
170. S. Lu, W.W. Lonergan, J.P. Bosco, S. Wang, Y. Zhu, Y. Xie, and J.G. Chen, "Low Temperature Hydrogenation of Benzene and Cyclohexene: A Comparative Study between γ-Al₂O₃ Supported PtCo and PtNi Bimetallic Catalysts", *Journal of Catalysis*, 259 (2008) 260-268.

171. N. Ji, T. Zhang, M. Zheng, A. Wang, H. Wang, X. Wang, J.G. Chen, "Direct catalytic conversion of cellulose into ethylene glycol using Ni-promoted tungsten carbide catalysts", *Angewandte Chemie International Edition*, 47 (2008) 8510-8513 (*Journal Cover; Featured in Angewandte Press Release in Sept. 2008*).
172. O. Skoplyak, M.A. Barteau and J.G. Chen, "Reforming of oxygenates for H₂ production on 3d/Pt(111) bimetallic surfaces", *Topics in Catalysis*, 51 (2008) 49-59.
173. O. Skoplyak, M.A. Barteau and J.G. Chen, "Ethanol and Ethylene Glycol on Ni/Pt(111) Bimetallic Surfaces: A DFT and HREELS Study", *Surface Science*, 602 (2008) 3578-3587.
174. E.L. Kunkes, D.A. Simonetti, J.A. Dumesic, W.D. Pyrz, L.E. Murillo, J.G. Chen and D.J. Buttrey, "The role of rhenium in the conversion of glycerol to synthesis gas over carbon supported platinum-rhenium catalysts", *Journal of Catalysis*, 260 (2008) 164-177.
175. W. Chen, T.E. Madey, A.L. Stottlemeyer, J.G. Chen, P. Kaghazchi, and T. Jacob, "Structure Sensitivity in Adsorption and Decomposition of NO on Ir", *Journal of Physical Chemistry C*, 112 (2008) 19113-19120.
176. E.C. Weigert, S. Arisetty, S.G. Advani, A.K. Prasad, and J.G. Chen, "Electrochemical Evaluation of Tungsten Monocarbide (WC) and Platinum-Modified WC as Alternative DMFC Electrocatalysts", *Journal of New Materials for Electrochemical Systems*, 11 (2008) 243-251.
177. H. Shao, E.L. Kugler, D.B. Dadyburjor, S.A. Rykov and J.G. Chen, "Correlating NEXAFS Characterization of Co-W and Ni-W Bimetallic Carbide Catalysts with Reactivity for Dry Reforming of Methane", *Applied Catalysis A*, 356 (2009) 18-22.
178. C.A. Menning and J.G. Chen, "General Trend for Adsorbate-Induced Segregation of Subsurface Metal Atoms in Bimetallic Surfaces", *Journal of Chemical Physics*, 130 (2009) 174709.
179. D.V. Esposito, K.D. Dobson, B.E. McCandless, R.W. Birkmire and J.G. Chen, "A Comparative Study of Tungsten Monocarbide and Platinum as Counterelectrode Materials in Polysulfide-Based Photoelectrochemical Solar Cells", *Journal of the Electrochemical Society*, 156 (2009) B962-B969.
180. W. Huang, A. Li, R.F. Lobo and J.G. Chen, "Effects of Zeolite Structures, Exchanged Cations, and Bimetallic Formulations on the Selective Hydrogenation of Acetylene over Zeolite-Supported Catalysts", *Catalysis Letters*, 130 (2009) 380-385.
181. E.C. Weigert, D.V. Esposito and J.G. Chen, "Cyclic Voltammetry and XPS Studies of Electrochemical Stability of Clean and Pt-Modified Tungsten and Molybdenum Carbide (WC and Mo₂C) Electrocatalysts", *Journal of Power Sources*, 193 (2009) 501-506.
182. S. Lu, C.A. Menning, Y. Zhu and J.G. Chen, "Correlating benzene hydrogenation activity with binding energies of hydrogen and benzene on Co-based bimetallic catalysts", *ChemPhysChem*, 10 (2009) 1763-1765.
183. A.L. Stottlemeyer, H. Ren and J.G. Chen, "Reactions of methanol and ethylene glycol on Ni/Pt: Bridging the materials gap between single crystal and polycrystalline bimetallic surfaces", *Surface Science*, 603 (2009) 2630-2638.
184. S. Lu, W.W. Lonergan, Y. Zhu and J.G. Chen, "Support Effect on the Low-Temperature Hydrogenation of Benzene over PtCo Bimetallic and the Corresponding Monometallic Catalysts", *Applied Catalysis B*, 91 (2009) 610-618.
185. N. Ji, T. Zhang, M. Zheng, A. Wang, H. Wang, X. Wang, Y. Shu, A.L. Stottlemeyer and J.G. Chen, "Catalytic conversion of cellulose into ethylene glycol over supported carbide catalysts", *Catalysis Today*, 147 (2009) 77-85.

186. O. Skoplyak, M.A. Barteau and J.G. Chen, "Comparison of H₂ production from ethanol and ethylene glycol on M/Pt(111) (M = Ni, Fe, Ti) bimetallic surfaces", *Catalysis Today*, 147 (2009) 150-157.
187. A.M. Karim, V. Prasad, G. Mpourmpakis, W.W. Lonergan, A.I. Frenkel, J.G. Chen, and D.G. Vlachos, "Correlating Particle Size and Shape of Supported Ru/ γ -Al₂O₃ with NH₃ Decomposition Activity", *Journal of the American Chemical Society*, 131 (2009) 12230-12239.
188. S. Lu, Q. Fang, Y. Zhu, Y. Xie and J.G. Chen, "Influence of the phase composition of titania on catalytic behavior of PtCo/TiO₂ for the hydrogenation of benzene", *Chinese Journal of Catalysis*, 30 (2009) 748-752.
189. W. Chen, A.L. Stottlemeyer, J.G. Chen, P. Kaghazchi, and T. Jacob, T.E. Madey, R. Bartyński, "Adsorption and Decomposition of NO on O-covered Planar and Faceted Ir(210)", *Surface Science*, 603 (2009) 3136-3144.
190. L.E. Murillo, C.A. Menning and J.G. Chen, "Trend in the C=C and C=O Bond Hydrogenation of Acrolein on Pt-M (M = Ni, Co, Cu) Bimetallic Surfaces", *Journal of Catalysis*, 268 (2009) 335-342.
191. D.V. Esposito, O.Y. Goue, K.D. Dobson, B.E. McCandless, J.G. Chen and R.W. Birkmire, "A New Photoelectrochemical Test Cell and Its Use for a Combined Two- and Three-Electrode Approach to Performance Evaluation", *Review of Scientific Instrument*, 80 (2009) 125107.
192. C.A. Menning and J.G. Chen, "Regenerating Pt-3d-Pt Model Electrocatalysts through Oxidation-Reduction Cycles Monitored at Atmospheric Pressure", *Journal of Power Sources*, 195 (2010) 3140-3144.
193. J.P. Bosco, K. Sasaki, M. Sadakane, W. Ueda and J.G. Chen, "Synthesis and Characterization of Three-Dimensionally Ordered Macroporous (3DOM) Tungsten Carbide: Application to Direct Methanol Fuel Cells", *Chemistry of Materials*, 22 (2010) 966-973.
194. H. Ren, M.P. Humbert, C.A. Menning, J.G. Chen, Y. Shu, U. Singh, and W.-C. Cheng, "Inhibition of Coking and CO Poisoning of Pt Catalysts Surfaces by the Formation of Au/Pt Bimetallic Surfaces", *Applied Catalysis A*, 375 (2010) 303-309.
195. J.G. Chen, S. Qi, M.P. Humbert, C.A. Menning, Y. Zhu, "Rational Design of Low-Temperature Hydrogenation Catalysts: Theoretical Predictions and Experimental Verification", *Acta Physico-Chimica Sinica*, (Invited Review), 26 (2010) 869-876.
196. M.P. Humbert, C.A. Menning, and J.G. Chen, "Replacing Bulk Pt in Pt-Ni-Pt Bimetallic Structures with Tungsten Monocarbide (WC): Hydrogen Adsorption and Cyclohexene Hydrogenation on Pt-Ni-WC", *Journal of Catalysis*, 271 (2010) 132-139.
197. C.A. Menning, and J.G. Chen, "Theoretical Prediction and Experimental Verification of Stability of Pt-3d-Pt Subsurface Bimetallic Structures: From Single Crystal Surfaces to Polycrystalline Films", *Topics in Catalysis*, 53 (2010) 338-347.
198. W.W. Lonergan, D.G. Vlachos and J.G. Chen, "Correlating Extent of Ni-Pt Bond Formation with Low Temperature Hydrogenation of Benzene and 1,3-Butadiene over PtNi Bimetallic Catalysts", *Journal of Catalysis*, 271 (2010) 239-250.
199. S. Qi, W. Yu, W.W. Lonergan, B. Yang, and J.G. Chen, "General Trend in the Partial and Complete Hydrogenation of 1,4-Cyclohexadiene over Pt/Co, Pt/Ni and Pt/Cu Bimetallic Catalysts", *ChemCatChem*, 2 (2010) 625-628.
200. D.A. Hansgen, D.G. Vlachos and J.G. Chen, "Using First Principles to Predict Bimetallic Catalysts for the Ammonia Decomposition Reaction", *Nature Chemistry*, 2 (2010) 484-489.

201. W. Yin, D.V. Esposito, S. Yang, C. Ni, J.G. Chen, G. Zhao, Z. Zhang, C. Hu, M. Cao and B. Wei, "Controlling Red-light Emissions by N-Doped In₂O₃ Nano/Microstructures", *Journal of Physical Chemistry C*, 114 (2010) 13234-13240.
202. S. Qi, W. Yu, W.W. Lonergan, B. Yang, and J.G. Chen, "Low-Temperature Hydrogenation and Dehydrogenation of 1,3-Cyclohexadiene on Pt/Ni Bimetallic Catalysts", *Chinese Journal of Catalysis*, 31 (2010) 955-960.
203. A.L. Stottlemeyer, P. Liu and J.G. Chen, "Comparison of Bond Scission Sequence of Methanol on Tungsten Monocarbide (WC) and Pt-modified WC", *Journal of Chemical Physics*, 133 (2010) 104702.
204. J.-H. Meng, C.A. Menning, M.B. Zellner and J.G. Chen, "Effects of Bimetallic Modification on the Decomposition of CH₃OH and H₂O on Pt/W(110) Bimetallic Surfaces", *Surface Science*, 604 (2010) 1845-1853.
205. C. Liu, Q. Zhu, Z. Wu, Z. Zhou, G. Bhargava, S. Parasher, M. Rueter, B. Zhou, and J.G. Chen, "Control of Pt Nanoparticle Surface Structures by Polyacrylic Acid over Pt/Re Naphtha Reforming Catalysts", *Applied Catalysis A*, 390 (2010) 19-25.
206. D.G. Vlachos, J.G. Chen, R.J. Gorte, G.W. Huber and M. Tsapatsis, "Catalysis Center for Energy Innovation for Biomass Processing: Research Strategies and Goals", *Catalysis Letters*, 140 (2010) 77-84.
207. M.C. Weidman, D.V. Esposito and J.G. Chen, "The Electrochemical Properties of Tungsten and Tungsten Monocarbide (WC) Over Wide pH and Potential Ranges", *Journal of the Electrochemical Society*, 157 (2010) F179-F188.
208. Q. Lu, Z.J. Mellinger, W. Wang, W. Li, Y. Chen, J. G. Chen and J.Q. Xiao, "Differentiation of bulk and surface contribution to super-capacitance in amorphous and crystalline NiO", *ChemSusChem*, 3 (2010) 1367-1370.
209. D.V. Esposito, S.T. Hunt, A.L. Stottlemeyer, K.D. Dobson, B.E. McCandless, R.W. Birkmire and J.G. Chen, "Low-Cost Hydrogen Evolution Catalysts Based on Monolayer Platinum on Tungsten Monocarbide (WC) Substrates", *Angewandte Chemie International Edition*, 49 (2010) 9859-9862 (*Journal Cover; Featured in Angewandte Press Release in Oct. 2010*).
210. A.L. Stottlemeyer, E.C. Weigert, and J.G. Chen, "Tungsten Carbides as Alternative Electrocatalysts: From Surface Science Studies to Fuel Cell Evaluation", *Industrial & Engineering Chemistry Research*, 50 (2011) 16-22.
211. S. Qi, B.A. Cheney, R. Zheng, W.W. Lonergan, W. Yu, and J.G. Chen, "The effects of oxide supports on the low temperature hydrogenation activity of acetone over Pt/Ni bimetallic catalysts", *Applied Catalysis A*, 393 (2011) 44-49.
212. W.W. Lonergan, X. Xing, R. Zheng, S. Qi, B. Huang, and J.G. Chen, "Low-Temperature 1,3-Butadiene Hydrogenation over Supported Pt/3d/ γ -Al₂O₃ Bimetallic Catalysts", *Catalysis Today*, 160 (2011) 61-69.
213. B.A. Cheney, J.A. Lauterbach and J.G. Chen, "Reverse Micelle Synthesis and Characterization of Pt/Ni Bimetallic Catalysts", *Applied Catalysis A*, 394 (2011) 41-47.
214. R. Zheng, Y.X. Zhu and J.G. Chen, "Promoting low temperature hydrogenation of C=O bonds of acetone and acetaldehyde using Co/Pt bimetallic catalysts", *ChemCatChem*, 3 (2011) 578-581.
215. I.J. Hsu, D.A. Hansgen, B.E. McCandless, B.G. Willis and J.G. Chen, "Atomic Layer Deposition of Pt on Tungsten Monocarbide (WC) for the Oxygen Reduction Reaction", *Journal of Physical Chemistry C*, 115 (2011) 3709-3715.
216. H. Ren, D.A. Hansgen, T.G. Kelly, A.L. Stottlemeyer and J.G. Chen, "Replacing Platinum with Tungsten Carbide (WC) for Reforming Reactions: Similarities in Ethanol Decomposition on Ni/Pt and Ni/WC Surfaces", *ACS Catalysis*, 1 (2011) 390-398.

217. T.G. Kelly, A.L. Stottlemeyer, H. Ren and J.G. Chen, "Comparison of O-H, C-H and C-O Bond Scission Sequence of Methanol on Tungsten Carbide Surfaces Modified by Ni, Rh and Au", *Journal of Physical Chemistry C*, 115 (2011) 6644-6650.
218. M.P. Humbert, A.L. Stottlemeyer, C.A. Menning, and J.G. Chen, "Bridging the Materials Gap between Single Crystal and Supported Catalysts Using Polycrystalline Ni/Pt Surfaces for Cyclohexene Hydrogenation", *Journal of Catalysis*, 280 (2011) 96-103.
219. D.A. Hansgen, L.M. Thomanek, J.G. Chen, and D.G. Vlachos, "Experimental and theoretical studies of ammonia decomposition activity on Fe-Pt, Co-Pt and Cu-Pt bimetallic surfaces", *Journal of Chemical Physics*, 134 (2011) 184701.
220. R. Zheng, M.P. Humbert, Y. Zhu and J.G. Chen, "Low-temperature hydrogenation of the C=O bond of propanal over Ni-Pt bimetallic catalysts: From model surfaces to supported catalysts", *Catalysis Science and Technology*, 1 (2011) 638-643.
221. M. Shao, B. Merzougui, K. Shoemaker, L. Stolar, L. Protsailo, Z.J. Mellinger, I.J. Hsu and J.G. Chen, "Tungsten Carbide Modified High Surface Area Carbon as Fuel Cell Catalyst Support", *Journal of Power Sources*, 196 (2011) 7426-7434.
222. M. Saliccioli, W. Yu, M.A. Barteau, J.G. Chen, D.G. Vlachos, "Differentiation of O-H and C-H Bond Scission Mechanisms of Ethylene Glycol on Pt and Ni/Pt Using Theory and Isotopic Labeling Experiments", *Journal of the American Chemical Society*, 133 (2011) 7996-8004.
223. Q Lu, M.W. Lattanzi, K.M. Unruh, J.G. Chen, J.Q. Xiao, "High Energy and Power Density Supercapacitor Electrode Prepared from Monolithic NiO/Ni Nanocomposite", *Angewandte Chemie International Edition*, 50 (2011) 6847-6850 (*Journal Cover*).
224. I.J. Hsu, D.V. Esposito, E.G. Mahoney, A. Black and J.G. Chen, "Particle shape control using pulse electrodeposition: methanol electrooxidation as a probe reaction on Pt dendrites and cubes", *Journal of Power Sources*, 196 (2011) 8307-312.
225. D.V. Esposito, J.G. Chen, R.W. Birkmire, Y. Chang, and N. Gaillard, "Hydrogen Production from Photo-driven Methanol Electrolysis over Pt-Modified Tungsten Oxide Photoelectrodes", *International Journal of Hydrogen Energy*, 36 (2011) 9632-9644.
226. A.I. Frenkel, Q. Wang, N. Marinkovic, J.G. Chen, L. Barrio, R. Si, A. López Cámara, A.M. Estrella, J.A. Rodriguez, J.C. Hanson, "Combining X-ray absorption and X-ray diffraction techniques for *in situ* studies of chemical transformations in heterogeneous catalysis: advantages and limitations", *Journal of Physical Chemistry C*, 115 (2011) 17884-17890.
227. D.A. Hansgen, D.G. Vlachos and J.G. Chen, "Ammonia Decomposition Activity on Monolayer Ni Supported on Ru, Pt and WC Substrates", *Surface Science*, 605 (2011) 2055-2060.
228. W.W. Lonergan, T. Wang, D.G. Vlachos and J.G. Chen, "Effect of oxide support surface area on hydrogenation activity: Pt/Ni bimetallic catalysts supported on low and high surface area Al₂O₃ and ZrO₂", *Applied Catalysis A*, 408 (2011) 87-95.
229. D.V. Esposito and J.G. Chen, "Monolayer Platinum Supported on Tungsten Carbides as Low-Cost Electrocatalysts: Opportunities and Limitations", *Energy and Environmental Science*, (Invited Perspective), 4 (2011) 3900-3912.
230. W. Yu, M.A. Barteau and J.G. Chen, "Glycolaldehyde as a Probe Molecule for Biomass-derivatives: Reaction of C-OH and C=O Functional Groups on Monolayer Ni Surfaces", *Journal of the American Chemical Society*, 133 (2011) 20528-20535.
231. I.J. Hsu, Y.C. Kimmel, S. Chen and J.G. Chen, "Rotating Disk Electrode Measurements of Activity and Stability of Monolayer Pt on Tungsten Carbide Disks for Oxygen Reduction Reaction", *Journal of Power Sources*, 199 (2012) 46-52.

232. I.J. Hsu, Y.C. Kimmel, B.G. Willis and J.G. Chen, "Atomic Layer Deposition Synthesis of Platinum-Tungsten Carbide Core-Shell Catalysts for the Hydrogen Evolution Reaction", *Chemical Communications*, 48 (2012) 1063-1065.
233. Y.C. Kimmel, D.V. Esposito, R.W. Birkmire and J.G. Chen, "Effect of Surface Carbon on the Hydrogen Evolution Reactivity of Tungsten Carbide (WC) and Pt-Modified WC Electrocatalysts", *International Journal of Hydrogen Energy*, 37 (2012) 3019-3024.
234. M.C. Weidman, D.V. Esposito, Y.C. Hsu and J.G. Chen, "Comparison of Electrochemical Stability of Transition Metal Carbides (WC, W₂C, Mo₂C) Over a Wide pH Range", *Journal of Power Sources*, 202 (2012) 11-17.
235. R. Zheng, M.D. Porosoff, J.L. Weiner, S. Lu, Y. Zhu and J.G. Chen, "Controlling hydrogenation of C=O and C=C bonds in cinnamaldehyde using silica supported Co-Pt and Cu-Pt bimetallic catalysts", *Applied Catalysis A*, 419/420 (2012) 126-132.
236. D.V. Esposito, S.T. Hunt, Y.C. Kimmel and J.G. Chen, "A New Class of Electrocatalysts for Hydrogen Production from Water Electrolysis: Metal Monolayers Supported on Low-Cost Transition Metal Carbides", *Journal of the American Chemical Society*, 134 (2012) 3025-3033. (*Highlighted in Chemical & Engineering News on Jan. 23, 2012*).
237. W. Yu, Z.J. Mellinger, M.A. Barteau and J.G. Chen, "Comparison of Reaction Pathways of Ethylene Glycol, Acetaldehyde and Acetic Acid on Tungsten Carbide (WC) and Ni-modified WC Surfaces", *Journal of Physical Chemistry C*, 116 (2012) 572-5729.
238. C. Weiland, L. Yang, C.A. Menning, B.G. Willis, J.G. Chen, D.J. Doren and R. Opila, "The Binding of Styrene on Si (111)-7x7 Surfaces as a Model Molecular Electronics System", *Journal of Vacuum Science and Technology A*, 30 (2012) 31401.
239. Y. Huang, D.G. Vlachos and J.G. Chen, "Synthesis of Rigid and Stable Large-Inner-Diameter Multiwalled Carbon Nanotubes", *RSC Advances*, 2 (2012) 2685-2687.
240. Z.J. Mellinger, T.G. Kelly and J.G. Chen, "Pd-Modified Tungsten Carbide for Methanol Electro-oxidation: From Surface Science Studies to Electrochemical Evaluation", *ACS Catalysis*, 2 (2012) 751-758.
241. X. Yang, Y.C. Kimmel, J. Fu, B.E. Koel and J.G. Chen "Activation of tungsten carbide catalysts by use of an oxygen plasma pretreatment", *ACS Catalysis*, 2 (2012) 765-769.
242. P.T. Do, A.J. Foster, J.G. Chen and R.F. Lobo, "Bimetallic Effects in the Hydrodeoxygenation of meta-Cresol on γ -Al₂O₃ Supported Pt-Ni and Pt-Co Catalysts", *Green Chemistry*, 14 (2012) 1388-1397.
243. N. Ji, M. Zheng, A. Wang, T. Zhang and J.G. Chen, "Ni-promoted Tungsten Carbide for Cellulose Conversion: Effect of Preparation Methods", *ChemSusChem*, 5 (2012) 939-944.
244. Y. Huang, F. Deng, C. Ni, J.G. Chen and D.G. Vlachos, "Synthesis of Mesoporous Silica Nanobamboo with Highly Dispersed Tungsten Carbide Nanoparticles", *Dalton Transactions*, 41 (2012) 6914-6918.
245. J.R. McManus, M. Saliccioli, W. Yu, D.G. Vlachos, J.G. Chen and J.M. Vohs, "Correlating the Surface Chemistry of C₂ and C₃ Aldoses with a C₆ Sugar: Reaction of Glucose, Glyceraldehyde and Glycolaldehyde on Pd(111)", *Journal of Physical Chemistry C*, 116 (2012) 18891-18898.
246. J.R. McManus, W. Yu, M. Saliccioli, D.G. Vlachos, J.G. Chen and J.M. Vohs, "Biomass-Derived Oxygenate Reforming on Pt(111): A Demonstration of Surface Science using D-Glucose and its Model Surrogate Glycolaldehyde", *Surface Science*, 606 (2012) L91-L94.
247. D.V. Esposito, R. V. Forest, Y. Chang, S. Hou, B.E. McCandless, N. Gaillard, K.H. Lee, R.W. Birkmire and J.G. Chen, "Photoelectrochemical Reforming of Glucose to Produce

- H₂ using a WO₃-based Tandem Cell Device”, *Energy & Environmental Science*, 5 (2012) 9091-9099.
248. A.I. Frenkel, J.A. Rodriguez and J.G. Chen, “Synchrotron techniques for *in situ* catalytic studies: Capabilities, challenges and opportunities”, *ACS Catalysis*, (Invited Perspective), 2 (2012) 2269-2280.
 249. S.A. Tupy, A.M. Karim, C. Bagia, W. Deng, Y. Huang, D.G. Vlachos and J.G. Chen, “Correlating ethylene glycol reforming activity with in-situ EXAFS detection of Ni segregation in supported NiPt bimetallic catalysts”, *ACS Catalysis*, 2 (2012) 2290-2296.
 250. W. Yu, M.D. Porosoff and J.G. Chen, “Review of Pt-based Bimetallic Catalysis: From Model Surfaces to Supported Catalysts”, *Chemical Reviews*, 112 (2012) 5780-5817.
 251. T.D. Courtney, V. Nikolakis, G. Mpourmpakis, J.G. Chen and D.G. Vlachos, “Liquid-Phase Dehydration of Propylene Glycol Using Solid-Acid Catalysts”, *Applied Catalysis A*, 449 (2012) 59-68.
 252. A.L. Stottlemyer, T.G. Kelly, Q. Meng and J.G. Chen, “Reactions of Oxygen-Containing Molecules on Transition Metal Carbides: Surface Science Insight into Potential Applications in Catalysis and Electrocatalysis”, *Surface Science Reports (invited review)*, 67 (2012) 201-232.
 253. T.G. Kelly and J.G. Chen, “Metal Overlayer on Metal Carbide Substrate: Unique Bimetallic Properties for Catalysis and Electrocatalysis”, *Chemical Society Reviews*, 41 (2012) 8021-8034.
 254. Q. Lu, Y. Chen, W. Li, J.G. Chen, J.Q. Xiao and F. Jiao, "Ordered mesoporous nickel cobaltite spinel with ultra-high supercapacitance", *Journal of Materials Chemistry A*, 1 (2013) 2331-2336.
 255. K.W. McNamara, P. Ayyappan, R. Rajagopalan, J.G. Chen and H.C. Foley, "Localized Crystallization of Polyfurfuryl Alcohol Derived Carbon by Alkali Metals", *Carbon*, 56 (2013) 109-120.
 256. Q. Lu, J.G. Chen and J.Q. Xiao, “Design Nanostructured Electrodes for High-performance Supercapacitors”, *Angewandte Chemie International Edition*, 52 (2013) 1882-1889.
 257. M.D. Porosoff and J.G. Chen, "Trends in the catalytic reduction of CO₂ by hydrogen over supported monometallic and bimetallic catalysts", *Journal of Catalysis*, 301 (2013) 30-37.
 258. T.G. Kelly, S.T. Hunt, D.V. Esposito and J.G. Chen, “Monolayer Palladium Supported on Molybdenum and Tungsten Carbide Substrates as Low-cost Hydrogen Evolution Reaction (HER) Electrocatalysts”, *International Journal of Hydrogen Energy*, 38 (2013) 5638-5644.
 259. W. Sheng, M. Myint, J.G. Chen and Y. Yan, "Correlating Hydrogen Evolution Reaction Activity in Alkaline Electrolyte to Hydrogen Binding Energy on Monometallic Surfaces", *Energy & Environmental Science*, 6 (2013) 1509-1512.
 260. H. Ren, W. Yu, M. Saliccioli, Y. Chen, Y. Huang, K. Xiong, D.G. Vlachos and J.G. Chen, “Selective Hydrodeoxygenation of Biomass-derived Oxygenates to Unsaturated Hydrocarbons using Molybdenum Carbide Catalysts”, *ChemSusChem*, 6 (2013) 798-801.
 261. Y. Liu, T.G. Kelly, J.G. Chen and W.E. Mustain, “Metal Carbides as Alternative Electrocatalyst Supports”, *ACS Catalysis (Invited Perspective)* 3 (2013) 1184-1194.
 262. T. Wang, G. Mpourmpakis, W.W. Lonergan, D.G. Vlachos and J.G. Chen, “Effect of Oxide Supports in Stabilizing Desirable Pt-Ni Bimetallic Structures for Hydrogenation and Reforming Reactions”, *Physical Chemistry Chemical Physics*, 2013, 15, 12156-12164.

263. S.A. Tupy, J.G. Chen and D.G. Vlachos, "Comparison of ethylene glycol steam reforming over Pt and NiPt catalysts on various supports", *Topics in Catalysis*, 56 (2013) 1644-1650.
264. T. Wang, W.W. Lonergan and J.G. Chen, "Selection of Oxide Supports to Anchor Desirable Bimetallic Structures for Ethanol Reforming and 1,3-Butadiene Hydrogenation", *Chinese Journal of Catalysis*, 34 (2013) 2009-2017.
265. M.D. Porosoff, W. Yu and J.G. Chen, "Challenges and Opportunities in Correlating Bimetallic Model Surfaces and Supported Catalysts", *Journal of Catalysis* (50th Anniversary Special Issue), 308 (2013) 2-10.
266. H. Ren, Y. Chen, Y. Huang, W. Deng, D.G. Vlachos, and J.G. Chen, "Tungsten Carbides as Selective Deoxygenation Catalysts: Experimental and Computational Studies of Converting C3 Oxygenates to Propene", *Green Chemistry*, 16 (2014) 761-769.
267. T.G. Kelly and J.G. Chen, "Controlling C-O, C-C and C-H Bond Scission for Deoxygenation, Reforming, and Dehydrogenation of Ethanol using Metal-modified Molybdenum Carbide Surfaces", *Green Chemistry*, 16 (2014) 777-784.
268. Q. Lu, J. Rosen, Y. Zhou, G.S. Hutchings, Y.C. Kimmel, J.G. Chen and F. Jiao, "A Highly Selective and Efficient Electrocatalyst for Carbon Dioxide Reduction", *Nature Communications*, 5 (2014) 3242.
269. Y.C. Kimmel, L. Yang; T.G. Kelly, S.A. Rykov and J.G. Chen, "Theoretical Prediction and Experimental Verification of Low Loading of Platinum on Titanium Carbide as Low Cost and Stable Electrocatalysts", *Journal of Catalysis*, 312 (2014) 216-220.
270. W. Yu, M. Saliccioli, K. Xiong, M.A. Barteau, D.G. Vlachos and J.G. Chen, "Theoretical and Experimental Studies of C-C versus C-O Bond Scission of Ethylene Glycol Reaction Pathways via Metal-Modified Molybdenum Carbides", *ACS Catalysis*, 4 (2014) 1409-1418.
271. Y.C. Kimmel, X. Xu, W. Yu, X. Yang and J.G. Chen, "Trends in Electrochemical Stability of Transition Metal Carbides and Their Potential Use as Supports for Low-Cost Electrocatalysts", *ACS Catalysis*, 4 (2014) 1558-1562.
272. R.V. Forest, E. Eser, B.E. McCandless, R.W. Birkmire and J.G. Chen "Understanding the role of oxygen in the segregation of sodium at the surface of molybdenum coated soda-lime glass", *AIChE Journal*, 60 (2014) 2365-2372.
273. W. Sheng, A.P. Bivens, M. Myint, Z. Zhuang, R.V. Forest, Q. Fang, J.G. Chen and Y. Yan, "Non-precious Metal Electrocatalyst with High Activity for Hydrogen Oxidation Reaction in Alkaline Electrolytes", *Energy & Environmental Science*, 7 (2014) 1719-1724.
274. T.G. Kelly, A.L. Stottlemeyer, X. Yang and J.G. Chen, "Theoretical and experimental studies of ethanol decomposition and electrooxidation over Pt-modified tungsten carbide", *Journal of Electrochemical Society*, 161 (2014) E3165-3170.
275. A.E. Baber, X. Yang, H.Y. Kim, K. Mudiyansele, M. Soldemo, J. Weissenrieder, S.D. Senanayake, A. Al-Mahboob, J. Sadowski, J. Evans, J.A. Rodriguez, P. Liu, F.M. Hoffmann, J.G. Chen and D. Stacchiola, "Stabilization of catalytically active Cu⁺ surface sites on titanium-copper mixed oxide films", *Angewandte Chemie International Edition*, 53 (2014) 5336-5340.
276. R. Hou, W. Yu, M.D. Porosoff, J.G. Chen and T. Wang, "Selective Hydrogenation of 1,3-Butadiene on Pd-Ni Bimetallic Catalyst: From Model Surfaces to Supported Catalysts", *Journal of Catalysis*, 316 (2014) 1-10.
277. M. Myint, Y. Yan and J.G. Chen, "Reaction Pathways of Propanal and 1-Propanol on Fe/Ni(111) and Cu/Ni(111) Bimetallic Surfaces", *Journal of Physical Chemistry C*, 118 (2014) 11340-11349.

278. T. Wang, M.D. Porosoff and J.G. Chen, "Effects of Oxide Supports on the Water-Gas Shift Reaction over Pt-Ni Bimetallic Catalysts: Activity and Methanation Inhibition", *Catalysis Today*, 233 (2014) 61-69.
279. M.D. Porosoff, X. Yang, J.A. Boscoboinik, and J.G. Chen, "Molybdenum carbide as alternative catalysts to precious metals for highly selective reduction of CO₂ to CO", *Angewandte Chemie International Edition*, 53 (2014) 6705-6709.
280. K. Xiong, W.-S. Lee, A. Bhan and J.G. Chen, "Molybdenum Carbide as a Highly Selective Deoxygenation Catalyst for Converting Furfural to 2-methylfuran", *ChemSusChem*, 7 (2014) 2146-2151.
281. W. Yu, K. Xiong, N. Ji, M.D. Porosoff and J.G. Chen, "Theoretical and Experimental Studies of the Adsorption Geometry and Reaction Pathways of Furfural over FeNi Bimetallic Model Surfaces and Supported Catalysts", *Journal of Catalysis*, 317 (2014) 253-262.
282. T.G. Kelly, K.X. Lee and J.G. Chen, "Pt-modified Molybdenum Carbide for the Hydrogen Evolution Reaction: From Model Surfaces to Powder Electrocatalysts", *Journal of Power Sources*, 271 (2014) 76-81.
283. X. Yang, W. Xu, M. Li, B.E. Koel, and J.G. Chen, "A New Class of Electrocatalysts of Supporting Pt on Engel-Brewer Alloy Substrates: A Demonstration for Oxidation of Ethylene Glycol", *Chemical Communications*, 85 (2014) 12981-12984.
284. K. Xiong, W. Yu and J.G. Chen, "Selective Deoxygenation of Aldehydes and Alcohols on Molybdenum Carbide (Mo₂C) Surfaces", *Applied Surface Science*, 323 (2014) 88-95.
285. E.G. Mahoney, W. Sheng, Y. Yan, and J.G. Chen, "Platinum-Modified Gold Electrocatalysts for the Hydrogen Oxidation Reaction in Alkaline Electrolytes", *ChemElectroChem*, 1 (2014) 2058-2063.
286. R. Hou, M.D. Porosoff, J.G. Chen and T. Wang, "Effect of oxide supports on Pd-Ni bimetallic catalysts for 1,3-butadiene hydrogenation", *Applied Catalysis A*, 490 (2015) 17-23.
287. I.J. Hsu, J.G. Chen, X. Jiang and B.G. Willis, "Atomic layer deposition synthesis and evaluation of core-shell Pt-WC electrocatalysts", *Journal of Vacuum Science and Technology A*, 33 (2015) 01A129.
288. M. Myint and J.G. Chen, "Understanding the Role of Metal-Modified Mo(110) Bimetallic Surfaces for C-O/C=O and C-C Bond Scission in C₃ Oxygenates", *ACS Catalysis*, 5 (2015) 256-263.
289. W. Sheng, Z. Zhuang, M. Gao, J. Zheng, J.G. Chen and Y. Yan, "Correlating hydrogen oxidation/evolution reaction activity on platinum at different pH with measured hydrogen binding energy", *Nature Communications*, 6 (2015) 5848.
290. J. Zheng, D. Cullen, R. Forest, J. Wittkopf, Z. Zhuang, W. Sheng, J.G. Chen and Y. Yan, "Platinum-Ruthenium Nanotubes and Platinum-Ruthenium Coated Copper Nanowires as Efficient Catalysts for Electro-Oxidation of Methanol", *ACS Catalysis*, 5 (2015) 1468-1474.
291. R.V. Forest, E. Eser, B.E. McCandless, J.G. Chen and R.W. Birkmire, "Reversibility of (Ag,Cu)(In,Ga)Se₂ electrical properties with the addition and removal of Na: Role of grain boundaries", *Journal of Applied Physics*, 117 (2015) 115102.
292. R. Hou, K. Chang, J.G. Chen and T. Wang, "Replacing Precious Metals with Carbide Catalysts for Hydrogenation Reactions", *Topics in Catalysis*, 58 (2015) 240-246.
293. M.D. Porosoff, S. Kattel, W. Li, P. Liu and J.G. Chen, "Identifying trends and descriptors for selective CO₂ conversion to CO over transition metal carbides", *Chemical Communications*, 51 (2015) 6988-6991.

294. L. Yang, Y.C. Kimmel, Q. Lu and J.G. Chen, "Effect of pretreatment on the particle size and hydrogen evolution and oxygen reduction activities of low-loading platinum on titanium carbide powder electrocatalysts", *Journal of Power Sources*, 287 (2015) 196-202.
295. Q. Lu, G.S. Hutchings, W. Yu, Y. Zhou, R.V. Forest, R. Tao, J. Rosen, B.T. Yonemoto, Z. Cao, H. Zheng, J.Q. Xiao, F. Jiao and J.G. Chen, "Highly Porous Non-precious Bimetallic Electrocatalysts for Efficient Hydrogen Evolution", *Nature Communications*, 6 (2015) 6567.
296. T.G. Kelly and J.G. Chen, "Decomposition Pathways of C₂ Oxygenates on Rh-modified Tungsten Carbide Surfaces", *Surface Science (Special Volume on Reactivity Concepts at Surfaces)*, 640 (2015) 89-95.
297. W. Yu and J.G. Chen, "Reaction Pathways of Model Compounds of Biomass-Derived Oxygenates on Fe/Ni Bimetallic Surfaces", *Surface Science (Special Volume on Reactivity Concepts at Surfaces)*, 640 (2015) 159-164.
298. Y. Zhou, Q. Lu, Z. Zhuang, G.S. Hutchings, S. Kattel, Y. Yan, J.G. Chen, J.Q. Xiao and F. Jiao, "Oxygen Reduction at Very Low Overpotential on Nanoporous Ag Catalysts", *Advanced Energy Materials*, 5 (2015) 1500149.
299. K. Xiong, W. Yu, D.V. Vlachos and J.G. Chen, "Reaction Pathways of Biomass-derived Oxygenates over Metals and Carbides: From Model Surfaces to Supported Catalysts", *ChemCatChem, (Invited Review)* 7 (2015) 1402-1421.
300. M.R. Stonor, T.E. Ferguson, J.G. Chen and A.-H. Park, "Biomass Conversion to H₂ with Substantially Suppressed CO₂ Formation in the Presence of Group I & Group II Hydroxides and a Ni/ZrO₂ Catalyst", *Energy & Environmental Science*, 8 (2015) 1702-1706.
301. X. Yang, S. Kattel, S.D. Senanayake, J.A. Boscoboinik, X. Nie, J. Graciani, J.A. Rodriguez, P. Liu, D.J. Stacchiola and J.G. Chen, "Low pressure CO₂ hydrogenation to methanol over gold nanoparticles activated on a CeO_x/TiO₂ interface", *Journal of the American Chemical Society*, 137 (2015) 10104-10107.
302. X. Yang, S. Kattel, X. Ke, K. Mudiyansele, S.A. Rykov, S.D. Senanayake, J.A. Rodriguez, P. Liu, D.J. Stacchiola and J.G. Chen, "Direct Epoxidation of Propylene over Stabilized Cu⁺ Surface Sites on Ti Modified Cu₂O", *Angewandte Chemie International Edition*, 54 (2015), 11946-11951. (*Frontispiece*).
303. J.A. Rodriguez, P. Liu, D.J. Stacchiola, S.D. Senanayake, M.G. White and J.G. Chen, "Hydrogenation of CO₂ to Methanol: Importance of Metal-Oxide and Metal-Carbide Interfaces in the Activation of CO₂", (*Invited Perspective*) *ACS Catalysis*, 5 (2015) 6696-6706.
304. M.D. Porosoff, M. Myint, S. Kattel, Z. Xie, E. Gomez, P. Liu and J.G. Chen, "Identifying different types of catalysts for CO₂ reduction by ethane through dry reforming and oxidative dehydrogenation", *Angewandte Chemie International Edition*, 54 (2015) 15501-15505.
305. E.G. Mahoney, W. Sheng, M. Cheng, K.X. Lee, Y. Yan and J.G. Chen, "Analyzing the electrooxidation of ethylene glycol and glucose over platinum-modified gold electrocatalysts in alkaline electrolyte using in-situ infrared spectroscopy", *Journal of Power Sources*, 305 (2016) 89-96.
306. J. Fu, X. Yang, C.A. Menning, J.G. Chen and B.E. Koel, "Composition, structure and stability of surfaces formed by Ni deposition on Pd(111)", *Surface Science, (Special Issue Honoring Professor Gabor Somorjai)* 646 (2016) 56-64.

307. K. Mudiyansele, S. Luo, H.Y. Kim, X. Yang, A.E. Baber, F.M. Hoffmann, J.A. Rodriguez, J.G. Chen, P. Liu, and D.J. Stacchiola, "How to stabilize highly active Cu⁺ cations in a mixed-oxide catalyst?", *Catalysis Today*, 263 (2016) 4-10.
308. M.D. Porosoff, B. Yan and J.G. Chen, "Catalytic reduction of CO₂ by H₂ for synthesis of CO, methanol and hydrocarbons: Challenges and opportunities", *Energy & Environmental Science*, 9 (2016) 62-73.
309. L. Wang, E.G. Mahoney, S. Zhao, B. Yang and J.G. Chen, "Low Loading of Platinum on Transition Metal Carbides for Hydrogen Oxidation and Evolution Reactions in Alkaline Electrolyte", *Chemical Communications*, 52 (2016) 3697-3700.
310. T. Bligaard, R.M. Bullock, C.T. Campbell, J.G. Chen*, B.C. Gates, R.J. Gorte, C.W. Jones, W.D. Jones, J.R. Kitchin, S.L. Scott*, "Towards Benchmarking in Catalysis Science: Best Practices, Opportunities, and Challenges", *ACS Catalysis*, 6 (2016) 2590-2602 (*Perspective, ACS Editors' Choice*).
311. B.M. Tackett, Y.C. Kimmel and J.G. Chen, "Metal-Modified Niobium Carbides as Low-Cost and Impurity-Resistant Electrocatalysts for Hydrogen Evolution in Acidic and Alkaline Electrolytes", *International Journal of Hydrogen Energy*, 41 (2016) 5948-5954.
312. Q. Lu, C.-J. Chen, W. Luc, J.G. Chen, A. Bhan and F. Jiao, "Ordered mesoporous metal carbides with enhanced anisole hydrodeoxygenation selectivity", *ACS Catalysis*, 6 (2016) 3506-3514.
313. K. Xiong, W. Wan and J.G. Chen, "Reaction Pathways of Furfural, Furfuryl Alcohol and 2-methylfuran on Cu(111) and NiCu Bimetallic Surfaces", *Surface Science* (Special Issue Honoring Professor John Yates), 652 (2016) 91-97.
314. S. Kattel, B. Yan, J.G. Chen and P. Liu, "CO₂ Hydrogenation on Pt, Pt/SiO₂ and Pt/TiO₂: Importance of Synergy between Pt and Oxide Support", *Journal of Catalysis*, 343 (2016) 115-126.
315. M. Myint, B. Yan, J. Wan, S. Zhao and J.G. Chen, "Reforming and Oxidative Dehydrogenation of Ethane with CO₂ as a Soft Oxidant over Bimetallic Catalysts", *Journal of Catalysis*, 343 (2016) 168-177.
316. S. Kattel, W. Yu, X. Yang, B. Yan, Y. Huang, W. Wan, P. Liu and J.G. Chen, "CO₂ Hydrogenation over Oxide-Supported PtCo Catalysts: The Role of the Oxide Support in Determining the Product Selectivity", *Angewandte Chemie International Edition*, 55 (2016) 7968-7973.
317. J. Wang, W. Wang, Z. Wang, J.G. Chen and C.-J. Liu, "Porous MS₂/MO₂ (M=W, Mo) Nanorods as Efficient Hydrogen Evolution Reaction Catalysts", *ACS Catalysis*, 6 (2016) 6585-6590.
318. D.W. Fickel, K.D. Sabnis, L. Li, N. Kulkarni, L.R. Winter, B. Yan and J.G. Chen, "Chloromethane to Olefins over H-SAPO-34: Probing the Hydrocarbon Pool Mechanism", *Applied Catalysis A*, 527 (2016) 146-151.
319. G.R. Jenness, W. Wan, K. Xiong, J.G. Chen and D.G. Vlachos, "Reaction Pathways and Intermediates in Selective Ring Opening of Biomass-Derived Heterocyclic Compounds by Iridium", *ACS Catalysis*, 6 (2016) 7002-7009.
320. S. Kattel, B. Yan, Y. Yang, J.G. Chen and P. Liu, "Optimizing Binding Energies of Key Intermediates for CO₂ Hydrogenation to Methanol over Oxide-Supported Copper", *Journal of the American Chemical Society*, 138 (2016) 12440-12450.
321. B. Yan, X. Yang, S. Yao, J. Wan, M. Myint, E. Gomez, Z. Xie, S. Kattel, W. Xu and J.G. Chen, "Dry Reforming of Ethane and Butane with CO₂ over PtNi/CeO₂ Bimetallic Catalysts", *ACS Catalysis*, 6 (2016) 7283-7292.

322. X. Li, W. Wan, S. Kattel, J.G. Chen and T. Wang, "Selective hydrogenation of biomass-derived 2(5H)-furanone over Pt-Ni and Pt-Co bimetallic catalysts: From model surfaces to supported catalysts", *Journal of Catalysis*, 344 (2016) 148-156.
323. Q. Zhang, B.M. Tackett, Q. Wu and J.G. Chen, "Trends in Hydrogen Evolution Activity of Metal-Modified Molybdenum Carbides in Alkaline and Acid Electrolytes", *ChemElectroChem*, 3 (2016) 1686-1693.
324. J.C. Matsubu, S. Zhang, L. DeRita, N.S. Marinkovic, J.G. Chen, G.W. Graham, X. Pan and P. Christopher, "Adsorbate-Mediated Strong Metal-Support Interactions in Oxide-Supported Rh Catalysts", *Nature Chemistry*, 9 (2017) 120-127.
325. K.A. Kuttiyiel, K. Sasaki, G-G. Park, M.B. Vukmirovic, L. Wu, Y. Zhu, J.G. Chen and R.R. Adzic, "Janus Structured Pt-FeNC Nanoparticles as Catalyst for the Oxygen Reduction Reaction", *Chemical Communications*, 53 (2017) 1660-1663.
326. L. Lin, W. Sheng, S. Yao, D. Ma and J.G. Chen, "Pt/Mo₂C/C-cp as a Highly Active and Stable Catalyst for Ethanol Electrooxidation", *Journal of Power Sources*, 345 (2017) 182-189.
327. Z. Xie, B. Yan, L. Zhang and J.G. Chen, "Comparison of methodologies of activation barrier measurements for reactions with deactivation", *Industrial & Engineering Chemistry Research*, 56 (2017) 1360-1364.
328. K. Chang, T. Wang and J.G. Chen, "Hydrogenation of CO₂ to methanol over CuCeTiOx catalysts", *Applied Catalysis B: Environmental*, 206 (2017) 704-711.
329. M. Dunwell, Q. Lu, J.M. Heyes, J. Rosen, J.G. Chen, Y. Yan, F. Jiao, and B. Xu, "The Central Role of Bicarbonate in the Electrochemical Reduction of CO₂ on Gold", *Journal of the American Chemical Society*, 139 (2017) 3774-3783.
330. S. Kattel, P.J. Ramírez, J.G. Chen, J.A. Rodriguez and P. Liu, "Active Sites for CO₂ Hydrogenation to Methanol on Cu/ZnO Catalysts", *Science*, 355 (2017) 1296-1299.
331. K. Chang, J.G. Chen, Q. Lu and M-J. Cheng, "Quantum Mechanical Study of N-Heterocyclic Carbene Adsorption on Au Surfaces", *Journal of Physical Chemistry A*, (2017) accepted.
332. W. Wan, G.R. Jenness, K. Xiong, D.G. Vlachos and J.G. Chen, "Ring-opening reaction of furfural and tetrahydrofurfuryl alcohol on hydrogen pre-dosed Ir(111) and Co/Ir(111) surfaces", *ChemCatChem*, (2017) accepted.
333. W. Wan, B.M. Tackett and J.G. Chen, "Reactions of water and C1 molecules on carbide and metal-modified carbide surfaces", *Chemical Society Reviews*, (2017) DOI: 10.1039/c6cs00862c.
334. W. Sheng, S. Kattel, S. Yao, B. Yan, C.J. Hawxhurst, Q. Wu and J.G. Chen, "Electrochemical Reduction of CO₂ to Synthesis Gas with Controlled CO/H₂ Ratios", *Energy & Environmental Science*, (2017) DOI: 10.1039/C7EE00071E.

Selected Invited Talks and Department Seminars:

Zhang Dayu Award Lecture, Dalian Institute of Chemical Physics, Dalian, June 2017
Plenary Lecture, International Conference on Applied Surface Science, Dalian, June 2017
Keynote Lecture, 25th North American Catalysis Meeting (NAM), Denver, June 2017
Invited Talk, Annual Electrochemical Society Meeting, New Orleans, May 2017
Department Seminar, Chemical Engineering, North Carolina State University, March 2017
Department Seminar, Chemical Engineering, Tianjin University, January 2017
Invited Talk, American Vacuum Society (John Yates Symposium), Nashville, November 2016
Department Seminar, Energy Sciences Institute, Yale University, November 2016
Invited Talk, American Chemical Society Annual Meeting, Philadelphia, August 2016
Keynote Lecture, Post-ICC Conference on Nano and Interfacial Catalysis, Dalian, July 2016

Invited Talk, 16th International Congress of Catalysis Conference, Beijing, July 2016
Plenary Lecture, Conference on Plasma Applications for Catalysis, Tianjin, June 2016
TsingFen Lecture, Chemistry Department, Tsinghua University, June 2016
Department Seminar, Chemical Science and Engineering, Tongji University, June 2016
Department Seminar, Chemical Engineering, University of Tennessee, April 2016
Invited Talk, American Chemical Society Annual Meeting, San Diego, March 2016
Department Seminar, Materials Sci. & Engineering, Stony Brook University, February 2016
Invited Talk, Catalysis Club of Philadelphia, January 2016
Department Seminar, Chemical Engineering, Zhejiang University, January 2016
Invited Talk, AIChE Annual Meeting, Salt Lake City, November 2015
Department Seminar, Chemical Engineering, Lehigh University, November 2015
Keynote Lecture, Sino-USA Annual Chemical Engineering Meeting, Shanghai, October 2015
Chemical Engineering Forum Lecture, Tsinghua University, October 2015
Invited Talk, American Chemical Society Annual Meeting, Boston, August 2015
Industry Seminar, SABIC Technology Center, June 2015
Parravano Memorial Award Lecture, Michigan Catalysis Society Annual Meeting, May 2015
Invited Talk, Southwest Catalysis Club Annual Meeting, April 2015
Department Seminar, Chemical Engineering, University of Houston, April 2015
Department Seminar, Chemical Engineering, University of California, Riverside, April 2015
Nano@Wayne Seminar, Wayne State University, April 2015
George Olah Award Lecture, American Chemical Society Meeting, Denver, March 2015
Department Seminar, Chemical Engineering, Villanova University, March 2015
Distinguished Speaker Seminar, University of Alabama at Huntsville, March 2015
Invited Tutorial Talk, AIChE Annual Meeting, Atlanta, November, 2014
Department Seminar, Chemical Engineering, University of South Florida, October 2014
Keynote Lecture, American Chemical Society Annual Meeting, San Francisco, August 2014
Department Seminar, Dalian Institute of Chemical Physics, July 2014
Department Seminar, Chemistry Department, Nanjing University, June 2014
Department Seminar, Mechanical Engineering, Shanghai Jiaotong University, June 2014
Department Seminar, Chemistry Department, Columbia University, May 2014
Industry Seminar, BASF Company, New Jersey, May 2014
Department Seminar, Materials Science and Engineering, Tsinghua University, April 2014
Department Seminar, Chemical Engineering, Princeton University, April 2014
Eastman Catalysis Lectureship, University of South Carolina, April 2014
Department Seminar, Chemical Engineering, University of Pittsburgh, April 2014
Industry Seminar, ExxonMobil Research and Engineering, New Jersey, April 2014
Department Seminar, Chemical Engineering, Ohio State University, March 2014
Invited Talk, American Chemical Society Annual Meeting, Dallas, March 2014
Invited Talk, Annual Meeting of Material Research Society (MRS), Boston, December 2013
Department Seminar, Chemical Engineering, City College of New York, October 2013
Department Seminar, Chemical Engineering, Rutgers University, October 2013
Invited Talk, New York Catalysis Club, October 2013
Department Seminar, Chemical Engineering, Johns Hopkins University, September 2013
Physical Chemistry Forum Lecture, Peking University, July 2013
Industry Seminar, ExxonMobil Strategic Research Laboratory, March, 2013
Keynote Lecture, Laboratory for Surface Modification Symposium, Rutgers Univ. March, 2013
Department Seminar, Chemistry, Tufts University, February, 2013
Invited Talk, AIChE Annual Meeting, Pittsburgh, October, 2012
Department Seminar, Chemical Engineering, Tsinghua University, October 2012

Department Seminar, Chemical Engineering, Xi'an Jiaotong University, October 2012
Invited Lecture, Chinese National Science Foundation Planning Meeting, October 2012
Keynote Lecture, American Chemical Society Annual Meeting, Philadelphia, August 2012
Invited Lecture, Gordon Research Conference on Catalysis, New Hampshire, June 2012
Department Seminar, Chemical Engineering, Univ. Texas at Austin, April 2012
Industry Seminar, Celanese Ltd., April 2012
Department Seminar, Chemical Engineering, Univ. Kansas, October 2011
Invited Talk, DOE/BES Contractors' Meeting, October 2011
Invited Talk, National Academies Chemical Sciences Roundtable, September 2011
Plenary Lecture, Annual Meeting of the Chicago Catalysis Club, May 2011
Invited Lecture, American Chemical Society Annual Meeting, Anaheim, March 2011
Invited Lecture, New York Catalysis Club, March 2011
Plenary Lecture, Chemical Heritage Foundation, Philadelphia, September 2010
Invited Talk, American Chemical Society Annual Meeting, Boston, August 2010
Invited Lecture, Philadelphia Catalysis Club, May 2010
Industry Seminar, ExxonMobil Chemicals, May 2010
Department Seminar, Chemical Engineering, Univ. Virginia, April 2010
Frontier Seminar in Catalysis, Pacific Northwest National Laboratory, March 2010
Department Seminar, Chemical Engineering, Columbia Univ. February 2010
Invited Lecture, Workshop on Design of Catalytic Materials, Univ. Notre Dame, January 2010
Invited Lecture, Chicago Catalysis Club, November 2009
Department Seminar, Argonne National Laboratory, November 2009
Industry Seminar, British Petroleum, November 2009
Department Seminar, Chemical Engineering, Tsinghua University, September 2009
Invited Talk, American Chemical Society Annual Meeting, Washington, DC, August 2009
Keynote Lecture, New England Catalysis Club Annual Meeting, April 2009
Invited Lecture, Michigan Catalysis Club, April 2009
Invited Talk, American Chemical Society Annual Meeting, Salt Lake City, March 2009
Department Seminar, New Jersey Institute of Technology, February 2009
Department Seminar, Univ. Wisconsin at Madison, January 2009
Industry Seminar, Air Liquide, November 2008
Department Seminar, Department of Chemical Engineering, Purdue Univ. September 2008
Industry Seminar, W.R. Grace, August 2008
Invited Lecture, Gordon Research Conference on Fuel Cells, July 2008
Industry Seminar, BASF, March 2008
Department Seminar, Department of Chemistry, Lehigh Univ. December 2007
Invited, Basic Research Needs for Energy, AIChE Meeting, Salt Lake City, November 2007
Department Seminar, Chemical Engineering, Pennsylvania State Univ. October 2007
Industry Seminar, Eastman Chemicals, September 2007
Keynote Lecture, North American Catalysis Meeting, Houston, June 2007
Department Seminar, Dalian Institute of Chemical Physics, China, May 2007
Distinguished Lecture in Catalysis, Pacific Northwest National Laboratory, March 2007
Department seminar, Department of Chemistry, Univ. Ottawa, January 2007
Keynote Lecture, ExxonMobil Research Symposium, October 2006
Keynote Lecture, American Chemical Society Annual Meeting, San Francisco, September 2006
Industry Seminar, ABB Lummus, June 2006
Invited Lecture, National Synchrotron Light Source Annual Meeting, May 2006
Industry Seminar, Headwaters Nanotechnology Inc. April 2006
Keynote Lecture, Annual Meeting of New York Catalysis Club, March 2006

Department Seminar, Department of Chemical Engineering, Ohio State Univ. December 2005
Distinguished Lecture in Nanocatalysis, Chemical Engineering, Tufts Univ. November 2005
Department Seminar, Chemical Engineering, Univ. Pennsylvania, October 2005
Department Seminar, Chemical Engineering, City College of New York, September 2005
Industry Seminar, ExxonMobile Research and Engineering, June 2005
Invited Talk, American Chemical Society, San Diego, March 2005
Industry Seminar, W.L. Gore Associates, November 2004
Invited Lecture, Center of Surface Science, Rutgers University, October 2004
Keynote Lecture, American Vacuum Society Annual Meeting, Anaheim, October 2004
Department Seminar, Chemistry Department, Brookhaven National Laboratory, August 2004
Invited Talk, American Chemical Society Annual Meeting, Philadelphia, August 2004
Industry Seminar, BOC Company, July 2004
Invited Lecture, Gordon Research Conference on Catalysis, New Hampshire, June 2004
Hua-Ying Distinguished Lecture, Nanjing Univ. May 2004
Department Seminar, Chemical Engineering, Virginia Tech, March 2004
Industry Seminar, DuPont Experimental Station, October 2003
Invited Talk, American Chemical Society Annual Meeting, New York, September 2003
Plenary Lecture, 2nd International Conference on Elementary Processes in Molecules, Puerto Rico, May 2003
Department Seminar, Chemical Engineering, North Carolina State Univ. March 2003
Department Seminar, Department of Chemistry, Texas A&M Univ. November 2002
Department Seminar, Chemical Engineering, Yale Univ. October 2002
Department Seminar, Department of Chemistry, Peking Univ. October 2002
Invited Talk, American Chemical Society Annual Meeting, Boston, August 2002
Industry Seminar, ExxonMobil Research and Engineering, July 2002
Invited Talk, American Chemical Society Annual Meeting, Orlando, April 2002
Department Seminar, Department of Chemistry, BrynMawr College, February, 2002
Department Seminar, Chemical Engineering, Carnegie Mellon Univ. December 2001
Invited Lecture, Annual Synchrotron User Meeting, Brookhaven National Lab, May 2001
Department Seminar, Department of Chemistry, Temple University, April 2001
Department Seminar, Oak Ridge National Laboratory, June 2001
Invited Lecture, DOE “Catalysis Futures Workshop”, Berkeley, March, 2001
Industry Seminar, Johnson Matthey Company, March 2001
Invited Lecture, Pacifichem Meeting, Honolulu, December 2000
Invited Lecture, Pittsburgh Catalysis Club Annual Meeting, December 2000
Keynote Lecture, American Vacuum Society Conference, Boston, October 2000
Industry Seminar, Rohm and Haas Company, October 2000
Invited Lecture, Philadelphia Catalysis Club, September 2000
Industry Seminar, Lyondell Company, September 2000
Invited Lecture, Surface Science Center, University of Pittsburgh, August 2000
Department Seminar, Department of Materials Science, Drexel University, January 2000
Invited Talk, North American Catalysis Meeting, Boston, May 1999
Department Seminar, Department of Chemistry, University of Illinois at Chicago, May 1998
Invited Talk, American Chemical Society Annual Meeting, Dallas, April 1998
Keynote Lecture, North American Meeting of the Catalysis Society, Chicago, May 1997
Invited Talk, American Chemical Society Annual Meeting, San Francisco, April 1997
Invited Lecture, Gordon Research Conference on Reactions at Surfaces, February 1997
Invited Lecture, Gordon Research Conference on Catalysis, New London, NH, June 1996
Invited Talk, Pacifichem Meeting, Honolulu, December 1995