Bo-Qing Xu_Biography

Bo-Qing Xu is a Changjiang Scholar Professor of Chemistry and serves as the Director at the Institute of Physical Chemistry of Tsinghua University. He completed his doctorate in physical chemistry of heterogeneous catalysis at Dalian Institute of Chemical Physics (DICP, Chinese Academy of Sciences) in 1988, as a jointly educated Ph.D. of DICP and Hokkaido University of Japan. He then worked as a research associate at DICP. In December 1991, he joined the faculty of the School of Chemical Engineering at Dalian University of Technology (DUT) and became a full Professor in late 1992. From March 1995 to April 1998, he worked as a visiting scientist fellow at the Catalysis Center in *Northwestern University* (USA) and at the School of Chemical Engineering in *Georgia Institute of Technology*. He joined Tsinghua University in May 1998 and had been as a short-term visiting professor at *UC Berkeley* (2002) and *Hong Kong Baptist University* (2003).

He has served as the vice-president of the Chinese Catalysis Society in 2012-2017, **associated editor** of *ACS Catalysis* since February 2014, **editorial advisory member** of *Current Catalysis* (2011-), *Chinese Journal of Catalysis* (2001-), *Chinese Journal of Fuel Chemistry* (2009-) and *Chinese Journal of Environmental Science & Technology* (2008-). He was an editorial advisory member of *Applied Catalysis A-General* (2005-2008) and a gust editor of *Topics in Catalysis* (2003). He was also an International Advisory Board member of the international *Acid-Base Catalysis Group* (2001-2013). His main research interest is on the physical chemistry aspects of Heterogeneous Catalysis and Nanostructure Materials for sustainable energy and environments. He has authored/coauthored more than 230 publications with an H-index of 50 by June 2018, and owns 21 patents. He delivered 60+ invited presentations in academic conferences and research institutions.

Bo-Qing Xu's scientific research received a number of awards in China, including Natural Science Award of the Ministry of Education of China (2009), National Catalysis Award of the Chinese Catalysis Society (2006), Scientific Advancement Award form the Association of Chinese Chemical and Petrochemical Industries (2006), Outstanding Young Chemist Award (NSF China, 2001).

(1) B. Yan, L.-Z. Tao, Y. Liang, and B.-Q. Xu*, Sustainable production of acrylic acid: performance of alkali-ion exchanged Beta zeolite for gas-phase dehydration of lactic acid, ***ChemSusChem*** **7**, 1568-1578 (**2014**).

(2) B. Yan, L.-Z. Tao, Y. Liang, and B.-Q. Xu*, Sustainable Production of Acrylic Acid: Catalytic Performance of hydroxyapatites for gas-phase dehydration of lactic acid, ***ACS Catal.*** **4**, 1931-1943 (**2014**).

(3) S.-S. Liu, K.-Q. Sun, and B.-Q. Xu*, Specific selectivity of Au-catalyzed oxidation of glycerol and other C_3 polyols in water without the presence of a base, ***ACS Catal.*** **4**, 2226-2230 (**2014**).

(4) S.-H. Chai, B. Yan, L.-Z. Tao, Y. Liang, B.-Q. Xu*, Sustainable production of acrolein: Catalytic gas-phase dehydration of glycerol over dispersed tungsten oxides on alumina, zirconia and silica, ***Catal. Today*** **234**, 215-222 (**2014**).

(5) L.-Z. Tao, S.-H. Chai, H.-P. Wang, B. Yan, Y. Liang, B.-Q. Xu*, Comparison of gas-phase dehydration of propane polyols over solid acid-base catalysts, ***Catal. Today*** **234**, 237-244 (**2014**).

(6) S.-H. Chai, L.-Z. Tao, B. Yan, J. C. Vedrine, and B.-Q. Xu*, Sustainable production of acrolein: effects of reaction variables, modifiers doping and ZrO_2 origin on the performance of WO_3/Zr_{O2} catalyst, ***RSC Adv.*** **4**, 4619-4630 (**2014**).

(7) L.-Z. Tao, B. Yan, Y. Liang and B.-Q. Xu*, Sustainable production of acrolein: catalytic performance of hydrated tantalum oxides for gas-phase dehydration of glycerol, ***Green Chem.*** **15**, 696-705 **(2013)**.

(8) L.-Z. Tao, S.-H. Chai, Y. Zuo, W.-T. Zheng, Y. Liang, B.-Q. Xu*, Sustainable production of acrolein: Acidic binary metal oxide catalysts for gas-phase dehydration of glycerol, ***Catal. Today*** **158**, 310-316 **(2010)**.

(9) S.-H. Chai, H.-P. Wang, Y. Liang, B.-Q. Xu*, Sustainable Production of Acrolein: Preparation and Characterization of Zirconia-supported 12-tungstophosphoric Acid Catalyst for Gas-phase Dehydration of Glycerol, ***Appl. Catal. A:*** **353**, 213-222 (**2009**). (**Cited: 66/170**)

(10) S.-H. Chai, H.-P. Wang, Y. Liang, B.-Q. Xu*, Sustainable Production of Acrolein: Gas-phase Dehydration of Glycerol over 12-Tungstophosphoric Acid Supported on ZrO_2 and SiO_2, ***Green Chem.*** **10**, 1087-1093 (**2008**). (**Cited: 65/170**)

(11) S.-H. Chai, H.-P. Wang, Y. Liang, B.-Q. Xu*, Sustainable Production of Acrolein: Investigation of Solid Acid-Base Catalysts for Gas-phase Dehydration of Glycerol, ***Green Chem.*** **9**: 1130-1136 (**2007**). (**Cited: 107/170**)

(12) S.-H. Chai, H.-P. Wang, Y. Liang, B.-Q. Xu*, Sustainable Production of Acrolein: Gas-phase Dehydration of Glycerol over Nb_2O_5 Catalyst, ***J. Catal.*** **250**, 342–349 (**2007**). (**Cited: 147/170**)

Selected Publications in Peer Reviewed International Journals: epimerization

1. Bo Yan, Li-Zhi Tao, Azhar Mahmood, Yu Liang, Bo-Qing Xu*, Potassium-Ion-Exchanged zeolites for sustainable production of acrylic acid by gas-phase dehydration of lactic acid, *ACS Catalysis*, **2017**, 7, 538–550.
2. Liu-Liu Shen, Gui-Rong Zhang, Shu Miao, Jingyue (Jimmy) Liu, Bo-Qing Xu*, Core−shell nanostructured Au@Ni_mPt_2 electrocatalysts with enhanced activity and durability for oxygen reduction reaction, *ACS Catalysis*, **2016**, 6, 1680-1690.
3. Tian-Cheng Feng, Wen-Tao Zheng, Ke-Qiang Sun*, Bo-Qing Xu*, CO2 reforming of methane over coke-resistant Ni-Co/Si_3N_4 catalyst prepared via reactions between silicon nitride and metal halides, *Catalysis Communications*, **2016**, 73, 54-57.
4. Qian Wei, Yu-Sheng Shi, Ke-Qiang Sun*, Bo-Qing Xu*, Pd-on-Si catalysts prepared via galvanic displacement for the selective hydrogenation of para-chloronitrobenzene, *Chemical Communications*, **2016**, 52, 3026-3029.
5. Bo Yan, Azhar Mahmood, Yu Liang, Bo-Qing Xu*, Sustainable production of acrylic acid: Rb^+- and Cs^+-exchanged Beta zeolite catalysts for catalytic gas-phase dehydration of lactic acid, *Catalysis Today*, **2016**, 269, 65-73.
6. Yu-Sheng Shi, Zi-Fei Yuan, Qian Wei, Ke-Qiang Sun*, Bo-Qing Xu*, Pt-FeOx/SiO2 catalysts prepared by galvanic displacement show high selectivity for cinnamyl alcohol production in the chemoselective hydrogenation of cinnamaldehyde, *Catalytic Science & Technology*, **2016**, 6, 7033-7037.
7. Nan-Hong Xie, Xiang-Hui Yan, Bo-Qing Xu*, Is Ammonium peroxydisulfate indispensable for preparation of aniline-derived iron-nitrogen-carbon electrocatalysts?, *ChemSusChem*, **2016**, 9, 2301-2306.

8. W.-B. Li*, Z.-X. Liu, R.-F. Liu, J.-L. Chen, B.-Q. Xu, Rod-like CuMnOx transformed from mixed oxide particles by alkaline hydrothermal treatment as a novel catalyst for catalytic combustion of toluene, ***Phys. Chem. Chem.Phys.*** **2016**, 18, 22794-22798.
9. Y.-C. Wang, W.-B. Li*, L. Zhao, B.-Q. Xu, MOF-derived binary mixed metal/metal oxide @carbon nanoporous materials and their novel supercapacitive performances, ***Phys. Chem. Chem.Phys.*** **2016**, 18, 17941-17948.
10. Y. Xia, X.-Y. Zhong*, X.-X. Ke*, G.-R. Zhang, Z.-Y. Cheng, B.-Q. Xu, 3D quantification of low-coordinate surface atom density: bridging catalytic activity to concave facets of nanocatalysts in fuel cells, *Small*, **2016**, 12, 6332-6337.
11. Z.-F. Yuan, Z.-K. Gao, and B.-Q. Xu*, Acid-base property of the supporting material controls the selectivity of Au catalyst for glycerol oxidation in base-free water, ***Chinese J. Catal.*** **36**, 1543-1551 (**2015**).
12. X.-H. Yan, and B.-Q. Xu*, Mesoporous carbon material co-doped with nitrogen and iron (Fe–N–C): high-performance cathode catalyst for oxygen reduction reaction in alkaline electrolyte, ***J. Mater. Chem. A*** **2**, 8617-8622 (**2014**).
13. B. Yan, L.-Z. Tao, Y. Liang, and B.-Q. Xu*, Sustainable production of acrylic acid: performance of alkali-ion exchanged Beta zeolite for gas-phase dehydration of lactic acid, ***ChemSusChem*** **7**, 1568-1578 (**2014**).
14. B. Yan, L.-Z. Tao, Y. Liang, and B.-Q. Xu*, Sustainable Production of Acrylic Acid: Catalytic Performance of hydroxyapatites for gas-phase dehydration of lactic acid, ***ACS Catal.*** **4**, 1931-1943 (**2014**).
15. S.-S. Liu, K.-Q. Sun, and B.-Q. Xu*, Specific selectivity of Au-catalyzed oxidation of glycerol and other C_3-polyols in water without the presence of a base, ***ACS Catal.*** **4**, 2226-2230 (**2014**).
16. R.-Y. Zhong, K.-Q. Sun, Y.-C. Hong, **B.-Q. Xu*,** Impacts of organic stabilizers on catalysis of Au nanoparticles from colloidal preparation, ***ACS Catal***. **4**, 3982-3993 (**2014**).
17. S.-H. Chai, B. Yan, L.-Z. Tao, Y. Liang, B.-Q. Xu*, Sustainable production of acrolein: Catalytic gas-phase dehydration of glycerol over dispersed tungsten oxides on alumina, zirconia and silica, ***Catal. Today*** **234**, 215-222 (**2014**).
18. L.-Z. Tao, S.-H. Chai, H.-P. Wang, B. Yan, Y. Liang, B.-Q. Xu*, Comparison of gas-phase dehydration of propane polyols over solid acid-base catalysts, ***Catal. Today*** **234**, 237-244 (**2014**).
19. S.-H. Chai, L.-Z. Tao, B. Yan, J. C. Vedrine, and B.-Q. Xu*, Sustainable production of acrolein: effects of reaction variables, modifiers doping and ZrO2 origin on the performance of WO_3/ZrO_2 catalyst, ***RSC Adv.*** **4**, 4619-4630 (**2014**).
20. M.-M. Gui, S.-P. Chai*, **B.-Q. Xu**, A. R. Mohamed, Enhanced visible light responsive MWCNT/TiO_2 core-shell nanocomposites as the potential photocatalyst for reduction of CO_2 into methane, ***Sol. Energ. Mater. Sol. Cells*** **122**, 183-189 (**2014**).
21. M.-M. Gui, S.-P. Chai*, **B.-Q. Xu**, A. R. Mohamed, Visible-light-driven MWCNT@TiO_2 core-shell nanocomposites and the roles of MWCNTs on the surface chemistry, optical properties and reactivity in CO_2 photoreduction, ***RSC Adv.*** **4**, 24007-24013 (**2014**).
22. H. Zhang, B. Yao, L. Zhao, D.-X. Wang, **B.-Q. Xu**, M.-X. Wang*, Direct Synthesis of High-Valent Aryl-Cu(II) and Aryl-Cu(III) Compounds: Mechanistic Insight into Arene C-H Bond Metalation, ***J. Am. Chem. Soc.*** **136**, 6326-6332 (**2014**).
23. K.-J. Gao*, X.-Z. Liu, G.-T. Li, B.-Q. Xu, J.-J. Yi, Spontaneous formation of giant vesicles with tunable sizes based on jellyfish-like graft copolymers, ***RSC Adv.*** **4**, 59323-59330 (**2014**).
24. L.-Z. Tao, B. Yan, Y. Liang and B.-Q. Xu*, Sustainable production of acrolein: catalytic performance of hydrated tantalum oxides for gas-phase dehydration of glycerol, ***Green Chem.*** **15**, 696-705 **(2013)**.
25. K.-J. Gao, J.-J Yi, J. Mao, G.-T. Li, and B.-Q. Xu, A general template for synthesis of hollow microsphere with well-defined structure, ***J. Appl. Polymer Sci.*** **128**, 1687-1696 (**2013**).
26. Y.-Y. Feng, G.-R. Zhang, and B.-Q. Xu*, Catalytic Pd-on-Au nanostructures with improved Pd activity for formic acid electro-oxidation, ***RSC Adv.*** **3**, 1748 -1752 (**2013**)**.**
27. Z. Hu, W.-Z. Li, K.-Q. Sun*, and B.-Q. Xu*, Effects of support pre-calcination on the NOx storageand reduction performance of Pt-BaO/Al_2O_3 catalysts, ***Catal. Sci. & Technol.*** **3**, 2062-2071 **(2013)**.
28. R.-Y. Zhong, X.-H. Yan, Z.-K. Gao, R.-J. Zhang, and B.-Q. Xu*, Stabilizer Substitution and Its Effect on the Hydrogenation Catalysis by Au Nanoparticles from Colloidal Synthesis, ***Catal. Sci. & Technol.*** **3**, 3013-3039 **(2013)**.
29. G.-R. Zhang, B.-Q. Xu*, Nano-size effect of Au catalyst for electrochemical reduction of oxygen in alkaline electrolyte, ***Chinese J. Catal.*** **34**, 942-948 (**2013**).
30. X.-H. Yan, G.-R. Zhang and B.-Q. Xu*, Performance of polyaniline-derived Fe-N-C catalysts for oxygen reduction reaction in alkaline electrolyte, ***Chinese J. Catal.*** **34**, 1992-1997 (**2013**).
31. G.-R. Zhang, J. Wu, and B.-Q. Xu*, Syntheses of Sub-30 nm Au@Pd Concave Nanocubes and Pt-on-(Au@Pd) Tri-Metallic Nanostructures as Highly Efficient Catalysts for Ethanol Oxidation, ***J. Phys. Chem. C*** **116**, 20839-20847 (**2012**).
32. G.-R. Zhang, D. Zhao, K.-Q. Sun, B.-S. Zhang, D.-S. Su, G. Liu, and B.-Q. Xu*, Catalytic Pt-on-Au nanostructures: Why Pt becomes More Active on Smaller Au Particles, ***ACS Nano*** **6**, 2226-2236 **(2012).**
33. D.-P. He, X.-D. Jiao, P. Jiang, J. Wang, and B.-Q. Xu, An exceptionally active and selective Pt-Au/TiO_2 catalyst for hydrogenation of the nitro group in chloronitrobenzene, ***Green Chem.*** **14**, 111-116 **(2012)**.

34. W.-T. Zheng, K.-Q. Sun, H.-M. Liu, and B.-Q. Xu*, Nanocomposite Ni/ZrO_2: Highly active and stable catalyst for H_2 production via cyclic stepwise methane reforming reactions, ***Int. J. Hydrogen Energy*** **37**, 11735-11747 (**2012**).

35. K.-Q. Sun, Y.-C. Hong, G.-R. Zhang, B.-Q. Xu*, Synergy between Pt and Au in Pt-on-Au (Pt_m^Au) Nanostructures for Chemoselective Hydrogenation Catalysis, ***ACS Catal.*** **1**, 1336-1346 **(2011).**

36. Y.-C. Hong, K.-Q. Sun, G.-R. Zhang, R.-Y. Zhong, B.-Q. Xu,* Fully dispersed Pt entities on nano-Au dramatically enhance the activity of gold for chemoselective hydrogenation catalysis, ***Chem. Commun***. **47**, 1300-1302 **(2011).**

37. X. Zhang, H. Shi, B.-Q. Xu*, Vital roles of hydroxyl groups and gold oxidation states in Au/ZrO_2 catalysts for 1,3-butadiene hydrogenation, ***J. Catal.*** **279**, 75-87 **(2011).**

38. Y.-Y. Feng, G.-R. Zhang, J.-H. Ma, G. Liu, B.-Q. Xu*, Carbon-supported Pt^Ag nanostructures as cathode catalysts for oxygen reduction reaction, ***Phys. Chem. Chem. Phys.*** **1**3 3863-3872 **(2011).**

39. Z. Hu, K.-Q. Sun and B.-Q. Xu*, NO_x storage-reduction catalysis and structure-performance relationship of Pt-BaO catalyst, ***Chinese J. Catal.*** **32**, 17-26 (**2011**).

40. J.-H. Ma, Y.-Y. Feng, G.-R. Zhang, A.-J. Wang and B.-Q. Xu*, Performance improvement by tungsten oxides of the Pt-RuO_xH_y electrocatalyst for methanol oxidation, ***Chinese J. Catal.*** **31**, 521-524 (**2010**).

41. Y.-Y. Feng, J.-H. Ma, G.-R. Zhang, G. Liu, B.-Q. Xu*, Dealloyed carbon-supported PtAg nanostructures: Enhanced electrocatalytic activity for oxygen reduction reaction, ***Electrochem. Commun*****. 12**, 1197-1200 **(2010)**.

42. G.-R. Zhang, B.-Q. Xu*, Surprisingly strong effect of stabilizer on the properties of Au nanoparticles and Pt^Au nanostructures in electrocatalysis, ***Nanoscal*****e 2**, 2798-2804 **(2010)**.

43. J.-H. Ma, Y.-Y. Feng, J. Yu, D. Zhao, A.-J. Wang, B.-Q. Xu*, Promotion by hydrous ruthenium oxide of platinum for methanol electro-oxidation, ***J. Catal.*** **275**, 34-44 **(2010).**

44. Z. Hu, K.-Q. Sun, W.-Z. Li, B.-Q. Xu***,*** Effect of CoOx loading and calcination temperature on N_{Ox} storage and reduction performance of Pt-CoOx-BaO/A_{l2O3} catalysts, ***Catal. Today*** **158**, 432-438 **(2010)**.

45. Y.-C. Hong, K.-Q. Sun, K.-H. Han, G. Liu, B.-Q. Xu*, Comparison of catalytic combustion of carbon monoxide and formaldehyde over Au/ZrO_2 catalysts, ***Catal. Today*** **158**, 415-422 **(2010)**.

46. W.-Z. Li, K.-Q. Sun, Z. Hu, B.-Q. Xu*, Characteristics of low platinum Pt-BaO catalysts for NO_x storage and reduction, ***Catal. Today*** **153**, 103-110 **(2010)**.

47. Y. Wu, B.-Q. Xu*, One-Dimensional TiO_2 Nanomaterials: Preparation and Catalytic Applications, ***J. Nanosci. Nanotechnol.*** **10**, 6707-6719 (**2010**).

48. Z. Hu, K.-Q. Sun*, W.-Z. Li, B.-Q. Xu*, Effect of CoO_x loading and calcination temperature on NO_x storage and reduction performance of Pt-CoOx-BaO/Al_2O_3 catalysts, ***Catal. Today*** **158**, 432-438 **(2010)**.

49. Y.-C. Hong, K.-Q. Sun, K.-H. Han, G. Liu, B.-Q. Xu*, Comparison of catalytic combustion of carbon monoxide and formaldehyde over Au/ZrO_2 catalysts, ***Catal. Today*** **158**, 415-422 **(2010)**.

50. L.-Z. Tao, S.-H. Chai, Y. Zuo, W.-T. Zheng, Y. Liang, B.-Q. Xu*, Sustainable production of acrolein: Acidic binary metal oxide catalysts for gas-phase dehydration of glycerol, ***Catal. Today*** **158**, 310-316 **(2010)**.

51. L.-H. Hu, K.-Q. Sun, Q. Peng, B.-Q. Xu, Y.-D. Li*, Surface Active Sites on Co3O4 Nanobelt and Nanocube Model Catalysts for CO Oxidation, ***Nano Research*** **3**, 362-268 (**2010**).

52. Dan Zhao, Yuan-Hao Wang, and Bo-Qing Xu*, Pt-flecks on colloidal Au (Pt^Ag) as nanostructured anode catalysts for electro-oxidation of formic acid, ***JOURNAL OF PHYSICAL CHEMISTRY*** **C 113**, 20903-20911 (**2009**).

53. Zhao, D; Wang, YH; Yan, B; Xu, BQ*, Manipulation of Pt^Ag nanostructures for advanced electrocatalyst, ***JOURNAL OF PHYSICAL CHEMISTRY C*** **113**, 1242-1250 (**2009**).

54. Chai, SH; Wang, HP; Liang, Y; Xu, BQ*, Sustainable Production of Acrolein: Preparation and Characterization of Zirconia-supported 12-tungstophosphoric Acid Catalyst for Gas-phase Dehydration of Glycerol, ***APPLIED CATALYSIS-A: GENERAL*** 353, 213-222 (**2009**).

55. Wang, YH; Liu, HM; Xu, BQ*, Durable Ni/MgO catalysts for CO_2 reforming of methane: Activity and metal-support interaction, ***JOURNAL OF MOLECULAR CATALYSIS-A: CHEMICAL,*** **299**, 44-52 (**2009**).

56. Wang, C; Xu, BQ*, Coprecipitation synthesis and optical absorption property of Zn_2Ti_x $Sn_{1-x}O_4$ ($0 \le x \le 1$) solid solution, ***JOURNAL OF MATERIALS SCIENCE,*** **44**, 919-925 (**2009**).

57. Wu, Y; Sun, KQ; Yu, J; Xu, BQ*, A key to the storage stability of Au/TiO_2 catalyst, ***Phys. Chem. Chem. Phys.*** **10**, 6399-6404 (**2008**).

58. Zhao, D; Yan, B; Xu, BQ*, Proper alloying of Pt with underlying Ag nanoparticles leads to dramatic activity enhancement of Pt electrocatalyst, ***Electrochem. Commun*****. 10**, 884-887 (**2008**).

59. Chai, SH; Wang, HP; Liang, Y; Xu, BQ*, "Sustainable Production of Acrolein: Gas-phase Dehydration of Glycerol over 12-Tungstophosphoric Acid Supported on ZrO_2 and SiO_2", ***GREEN CHEMISTRY*** **10**, 1087-1093 (**2008**).

60. Sun, KQ; Luo, SW; Xu, N; Xu, BQ*, Gold Nano-size Effect in Au/SiO2 for Selective Ethanol Oxidation in Aqueous Solution, ***CATALYSIS LETTERS***, **124**, 238-242 (**2008**).

61. Shi, H; Xu, N; Zhao, D; Xu, BQ*, Immobilized PVA-stabilized gold nanoparticles on silica show an unusual selectivity in the hydrogenation of cinnamaldehyde, ***CATALYSIS COMMUNICATIONS***, **9**, 1949-1954 (**2008**).

62. Gao, KJ; Li, G*; Lu, XP; Wu, YG; Xu, BQ; Fuhrhopb, JH; Giant vesicle formation through self-assembly of chitooligosaccharide-based graft copolymers, ***CHEMICAL COMMUNICATIONS*** 1449-1451 (**2008**).

63. Gao, KJ; Li, G*; Shi, HW; Lu, XP; Gao, YB; Xu, BQ*, Synthesis and Aggregation Behavior of Chitooligosaccharide-Based Biodegradable Graft Copolymers, ***JOURNAL OF POLYMER SCIENCE: PART A: POLYMER CHEMISTRY*** **46**: 4889–4904 (**2008**).

64. Yu, YT*; Wang, J; Zhang, JH; Yang, HJ; Xu, BQ*; Sun, JC, A Crucial Step to Platinum Nanocrystals with Special Surface: The Control of Aquochloro Ligand Exchange in Aqueous $PtCl_6^{2-}$ Solution, ***JOURNAL OF PHYSICAL CHEMISTRY C***, **111**, 18563-18567 (**2007**).

65. He, DP; Shi, H; Wu, Y; Xu, BQ*, Synthesis of chloroanilines: selective hydrogenation of the nitro in chloronitrobenzenes over zirconia-supported gold catalyst, ***GREEN CHEMISTRY*** **9**: 849-851 (**2007**).

66. Wu, G; Xu, BQ*, Carbon nanotube supported Pt electrodes for methanol oxidation: A comparison between multi- and single-walled carbon nanotubes, ***JOURNAL OF POWER SOURCES***, **174**, 148- 158 (**2007**).

67. He, DP; Shi, H; Wu, Y; Xu, BQ*, Formation of 2,3-diaminophenazines and their self-assembly into nanobelts in aqueous medium, ***EUROPEAN POLYMER JOURNAL,*** **43,** 3703 – 3709 (**2007**).

68. Zhang, X; Shi, H; Xu, BQ*, Comparative study of Au/ZrO_2 catalysts in CO oxidation and 1,3-butadiene hydrogenation, ***CATALYSIS TODAY*** **122**: 330-337 **(2007**).

69. Zhang, X; Ye, Q; Xu, BQ; He, DH, Oxidative dehydrogenation of ethane over Co-BaCO3 catalysts using CO_2 as oxidant: effects of Co promoter, ***CATALYSIS LETTERS,*** **117**: 140-145 (**2007**).

70. Wu, Y; Liu, HM; Xu, BQ*, Solvothermal synthesis of TiO_2: anatase nanocrystals and rutile nanofibres from $TiCl_4$ in acetone, ***APPLIED ORGANOMETALLIC CHEMISTRY***, **21:** 146-149 (**2007**).

71. Liu, HM; Ye, Q; Xu, BQ*, Efficient hydrogen production via stepwised steam reforming of methane using nanocomposite Ni/ZrO_2 catalyst, ***STUDIES IN SURFACE SCIENCE AND CATALYSIS***, 172, 473-476 (**2007**).

72. Zhang, X; Shi, H; Xu, BQ*, Performance control of hydrogenation catalysis by tuning the percentage of cationic gold in Au/ZrO_2 catalyst, ***STUDIES IN SURFACE SCIENCE AND CATALYSIS***, 172, 481-484 (**2007**).

73. Li, YW; He, DH; Zhu, ZH; Xu, BQ, Properties of Sm_2O_3-ZrO_2 composite oxides and their catalytic performance in isosynthesis, ***APPLIED CATALYSIS A-GENERAL,*** **319**: 119-127 (**2007**).

74. Chai, SH; Wang, HP; Liang, Y; Xu, BQ*, Sustainable Production of Acrolein: Investigation of Solid Acid-Base Catalysts for Gas-phase Dehydration of Glycerol, ***GREEN CHEMISTRY*** **9**: 1130- 1136 (**2007**).

75. Chai, SH; Wang, HP; Liang, Y; Xu, BQ*, Sustainable Production of Acrolein: Gas-phase Dehydration of Glycerol over Nb_2O_5 Catalyst, ***JOURNAL OF CATALYSIS*** **250**, 342–349 (**2007**).

76. Wu, Y; Liu, HM; Xu, BQ*, Single-Phase Titania Nanocrystallites and Nanofibers from Titanium Tetrachloride in Acetone and Other Ketones, ***INORGANIC CHEMISTRY***, **46:** 5093-5099 (**2007**).

77. Zhao, D; Xu, BQ*, Platinum covering of gold nanoparticles for utilization enhancement of Pt in electrocatalyst, ***PHYSICAL CHEMISTRY AND CHEMICAL PHYSICS,*** **8**: 5106-5114 **(2006**).

78. Zhao, D; Xu, BQ*, Enhancement of Pt utilization in electrocatalyst using gold nanoparticles, ***ANGEWANDTE CHEMIE-INTERNATIONAL EDITION,*** **45**: 4955-4959 **(2006**).

79. Li, L; Wu, G; Xu, BQ*, Electro-oxidation of CO on Pt catalyst supported on carbon nanotubes pretreated with oxidative acids; ***CARBON***, **44:** 2973-2983 (**2006**).

80. Yu, TY; Xu, BQ*, Shape-controlled synthesis of Pt-Nanocrystals: An evolution of the tetrahedral shape, ***APPLIED ORGANOMETALLIC CHEMISTRY***, **20:** 638-647 (**2006**).

81. Yin, SF; Xu, BQ*; Wang, SJ; Au, CT*, Nanosized Ru on high-surface-area superbasic ZrO_2-KOH for efficient generation of hydrogen via ammonia decomposition, ***APPLIED CATALYSIS A-GENERAL***, **301**: 202-210 (**2006**).

82. Ye, Q; Gao, Q; Zhang, XR; Xu BQ*, Cataluminescence and catalytic reactions of ethanol oxidation over nanosized $Ce_{1-x}Zr_xO_2$ ($0 \leq x \leq 1$) catalysts, ***CATALYSIS COMMUNICATIONS,*** **7**: 589-592 (**2006**).

83. Wu, G; Li, L; Li, JH; Xu, BQ*, Methanol electrooxidation on Pt particles dispersed into PANI/SWNT composite films, ***JOURNAL OF POWER SOURCES***, **155**: 118-127 (**2006**).

84. Zhou, KB; Wang, RP; Xu, BQ; Li, YD, Synthesis, characterization and catalytic properties of CuO nanocrystals with various shapes, ***NANOTECHNOLOGY***, 17: 3939-3943 (**2006**).

85. Wu, G; Chen, YS; Xu, BQ*, Remarkable support effect of SWNTs in Pt catalyst for methanol electrooxidation, ***Electrochem. Commun.*** **7**, 1237-1243 (**2005**).

86. Zhang, X; Shi, H; Xu, BQ*, Catalysis by gold: Isolated surface Au^{3+} ions are active sites for selective hydrogenation of 1,3-butadiene over Au/ZrO_2 catalysts, ***ANGEWANDTE CHEMIE- INTERNATIONAL EDITION***, **44**, 7132-7135 (**2005**).

87. Zhang, X; Wang, H; Xu, BQ*; Remarkable nanosize effect of zirconia in Au/ZrO_2 catalyst for CO oxidation, ***JOURNAL OF PHYSICAL CHEMISTRY C*** **109**, 9678-9683 (**2005**).

88. Wu, G; Li, L; Li, JH; Xu, BQ*; Polyaniline-carbon composite films as supports of Pt and PtRu catalysts for methanol electrooxidation, ***CARBON***, **43:** 2579 (**2005**).

89. Wang, H; Wu, Y; Xu, BQ*; Preparation and characterization of nanosized anatase TiO_2 cuboids for photocatalysis,

APPLIED CATALYSIS B-ENVIRONMENTAL, **59** (3-4): 143-150 (**2005**).

90. Wang, YH; Wang, H; Li, Y; Zhu, QM, Xu, BQ*; Performance of Ni/MgO–AN catalyst in high pressure CO2 reforming of methane, ***TOPICS IN CATALYSIS***, **32** (3-4): 109-116 (**2005**).
91. Wang, YH; Xu, BQ*; Comparative study of atmospheric and high pressure CO_2 reforming of methane over Ni/MgO-AN catalyst, ***CATALYSIS LETTERS,*** **99** (1-2): 89-96 (**2005**).
92. Wang, C; Xu, BQ*; Wang, XM; Zhao, JC, Preparation and photocatalytic activity of $ZnO/TiO_2/SnO_2$ mixture ***JOURNAL OF SOLID STATE CHEMISTRY***, **178** (11): 3500-3506 (**2005**).
93. Yang, KG; Hua, RM; Wang, H; Xu, BQ; Benzylation of aromatic compounds with benzyl chloride catalyzed by Nafion/SiO2 nanocomposite catalyst; ***CHINESE CHEMICAL LETTERS***, **16** (4): 527-530 (**2005**).
94. Zhao D; Wu G; Xu BQ*, Synthesis and characterization of Au@Pt nanoparticles, ***CHINESE SCIENCE BULLETIN,*** **50** (17): 1846-1848 (**2005**).
95. Wu, Y; Xu, BQ*, Synthesis and characterization of monoclinic TiO_2 nanosheets, ***CHINESE SCIENCE BULLETIN***, **50** (19): 2153-2156 (**2005**).
96. Yin, SF; Zhang, QH; Xu, BQ*; Zhu, WX; Ng, CF; Au, CT*; Investigation on the catalysis of COx-free hydrogen generation from ammonia, ***JOURNAL OF CATALYSIS,*** **224** (2): 384-396 (**2004**).
97. Zhang, QH; Li, Y; Xu, BQ*; Reforming of methane and coalbed methane over nanocomposite Ni/ZrO_2 catalyst, ***CATALYSIS TODAY*** **98** (1-4): 601-605 (**2004**).
98. Yin, SF; Xu, BQ*; Ng, CF; Au, CT*; Nano Ru/CNTs: a highly active and stable catalyst for the generation of COx-free hydrogen in ammonia decomposition, ***APPLIED CATALYSIS B-ENVIRONMENTAL,*** **48** (4): 237-241 (**2004**).
99. Wang, SJ; Yin, SF; Li, L; Xu, BQ*; Ng, CF; Au, CT*; Investigation on modification of Ru/CNTs catalyst for the generation of COx-free hydrogen from ammonia, ***APPLIED CATALYSIS B-ENVIRONMENTAL,*** **52** (4): 287-299 (**2004**).
100. Wang, H; Xu, BQ*; Catalytic performance of Nafion/SiO_2 nanocomposites for the synthesis of alpha-tocopherol; ***APPLIED CATALYSIS A-GENERAL,*** **275** (1-2): 247-255 (**2004**).
101. Yin, SF; Xu, BQ*; Zhou, XP; Au, CT*; A mini-review on ammonia decomposition catalysts for on-site generation of hydrogen for fuel cell applications, ***APPLIED CATALYSIS A-GENERAL,*** **277**, 1-9 (**2004**).
102. Li, YW; He, DH; Zhu, QM; Zhang, X; Xu, BQ, Effects of Redox Properties and Acid-Base Properties on Isosynthesis over ZrO2 Based Catalysts, ***JOURNAL OF CATALYSIS***, **221** (2): 584-593 (**2004**).
103. Yin, SF; Xu, BQ; Zhu, WX; Ng, CF; Zhou, XP; Au, CT; Carbon nanotubes-supported Ru catalyst for the generation of COx-free hydrogen from ammonia, ***CATALYSIS TODAY,*** **93-95**: 27-38 (**2004**).
104. Yin, SF; Xu, BQ*; Wang, SJ; Ng, CF; Au, CT; Magnesia-carbon nanotubes (MgO-CNTs) nanocomposite: novel support of Ru catalyst for the generation of COx-free hydrogen from ammonia, ***CATALYSIS LETTERS,*** **96** (3-4): 113-116 (**2004**).
105. Wu, G; Li, L; Xu, BQ*; Effect of electrochemical polarization of PtRu/C catalysts on methanol electrooxidation, ***ELECTROCHIMICA ACTA,*** **50**, 1-10 (**2004**).
106. Wand, C; Wang, XM; Xu, BQ*; Enhanced photocatalytic performance of nanosized coupled ZnO/SnO2 photocatalysts for methyl orange degradation, ***JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY A-CHEMISTRY,*** **168** (1-2): 47-52 (**2004**).
107. Wang, C; Xu, BQ*; Synthesis and optical absorption property of the $Zn_2TixSn_{1-x}O_4$ ($0 \le x \le 1$) solid solutions, ***JOURNAL OF SOLID STATE CHEMISTRY,*** **177** (10): 3448-3453 (**2004**).
108. Wu, G; Li, N; Zhou, DR; Mitsuo, K; Xu, BQ; Anodically electrodeposited Co plus Ni mixed oxide electrode: preparation and electrocatalytic activity for oxygen evolution in alkaline media, ***JOURNAL OF SOLID STATE CHEMISTRY***, **177** (10): 3682-3692 (**2004**).
109. Wu, G; Li, N; Wang, DL; Zhou, DR; Xu, BQ; Effect of alpha-Al2O3 particles on the electrochemical codeposition of Co-Ni alloys from sulfamate electrolytes ***MATERIALS CHEMISTRY AND PHYSICS***, **87** (2-3): 411-419 (**2004**).
110. Song, CS; Pan, W; Srimat, ST; Zheng, J; Li, Y; Wang, YH; Xu, BQ; Tri-reforming of methane over Ni catalysts for CO2 conversion to syngas with desired H_2/CO ratios using flue gas of power plants without CO2 separation, ***STUDIES IN SURFACE SCIENCE AND CATALYSIS***, **153**: 315-322 (**2004**).
111. Zhang, X; He, DH; Zhang, QJ; Xu, BQ; Zhu, QM; Methanol from oxidation of methane over MoOx/La-Co-oxide catalysts, ***STUDIES IN SURFACE SCIENCE AND CATALYSIS***, 147, 541-546 (**2004**).
112. Zhang, X; He, DH*; Zhang, QJ; Ye, Q; Xu, BQ; Zhu, QM; Characterization and catalytic performance of Zr-Mo-oxide catalysts for selective oxidation of methane to formaldehyde, ***COMPOSITE INTERFACES***, **11**, 153-167 (**2004**).
113. Xu, BQ*; Wei, JM; Yu, YT; Li, Y; Li, JL; Zhu, QM; Size limit of support particles in an oxide-supported metal catalyst: nanocomposite Ni/ZrO_2 for utilization of natural gas, ***JOURNAL OF PHYSICAL CHEMISTRY B***. **107** (22), 5203-5208 (**2003**).
114. Yin, SF; Xu, BQ*; On the preparation of high-surface-area nano-zirconia by reflux-digestion of hydrous zirconia gel in basic solution", ***CHEMPHYSCHEM***. **4** (3), 277-281 (**2003**).
115. Xu, BQ*; Wei, JM; Yu, YT; Li, JL; Zhu QM; CO_2 reforming of methane over nanocomposite Ni/ZrO_2 catalysts, ***TOPICS IN CATALYSIS***, **22** (1-2): 77 (**2003**).

116. X. Zhang, D.-H. He*, Q.-J. Zhang, **B.-Q. Xu**, Q.-M. Zhu, Comparative studies on direct conversion of methane to methanol/formaldehyde over La-Co-O and ZrO2 supported molybdenum oxide catalysts, ***TOPICS IN CATALYSIS*** **32**, 215-223 (**2005**).

117. Li, YW; He, DH; Zhang, QJ; Xu, BQ; Zhu, QM, Influence of reactor materials on i-C_4 synthesis from CO hydrogenation over ZrO_2 based catalysts, ***FUEL PROCESSING TECHNOLOGY***, **83**, 39-48 (**2003**).

118. Yu, YT; Xu, BQ*, Selective formation of tetrahedral Pt nanocrystals from K2PtCl6/PVP, ***CHINESE SCIENCE BULLETIN***, **48** (23): 2589-2593 (**2003**).

119. Tan, RQ; He Y; Zhu, YF; **Xu, BQ**; Cao, LL, Hydrothermal preparation of mesoporous TiO_2 powder from $Ti(SO_4)_2$ with poly(ethylene glycol) as template, ***J. Mater. Sci.*** **38,** 3973-3978 **(2003).**

120. Zhang, X; He, DH*; Zhang, QJ; Xu, BQ; Zhu, QM, Selective oxidation of methane to methanol using molecular oxygen on MoOx/($LaCoO_3$+Co_3O_4) catalysts, ***Chin. Chem. Lett.*** **14**, 1066-1069 (**2003**).

121. X. Zhang, He, DH*; Zhang, QJ; Ye, Q; Xu, BQ; Zhu, QM, Selective oxidation of methane to formaldehyde over Mo/ZrO2 catalysts, ***APPLIED CATALYSIS A-GENERAL***, **249**, 107-117 (**2003**).

122. Liu, GH; Zhu, YF; Zhang, XR*; Xu, BQ, Chemiluminescence determination of chlorinated volatile organic compounds by conversion on nanometer TiO_2, ***Anal. Chem.*** **74**, 6279-6284 (**2002**).

123. Zhang, QJ; He, DH; Li, JL; Xu, BQ; Liang, Y; Zhu, QM, Comparatively high-yield methanol production from gas phase partial oxidation of methane", ***APPLIED CATALYSIS A-GENERAL***, **224**, 201-207 (**2002**).

124. Wang, H; Xu, BQ*; Han, MH; Xu, C; Min, EZ, Nafion/SiO_2 nanocomposites: High potential catalysts for alkylation of benzene with linear C_9-C_{13} alkenes, ***CHINESE CHEMICAL LETTERS***, **13** (11): 1121-1124 (**2002**).

125. Yin, SF; Zhang, FZ; Xu, BQ*; Gas-Phase Beckmann Rearragnement of Cyclohexanone Oxime over B-ZSM-5 Derived Titanosilicalite, ***TSINGHUA SCIENCE AND TECHNOLOGY***, **7** (1): 11-14 (**2002**).

126. Xu, BQ*; Wei, JM; Wang, HY; Sun, KQ; Zhu, QM; Nano-MgO: Novel preparation and application as support of Ni catalyst for CO_2 reforming of methane, ***CATALYSIS TODAY***, **68**: 217 (**2001**).

127. Xu, BQ*; Cheng, SB; Zhang, X; Zhu, QM; B_2O_3/ZrO_2 for Beckmann rearrangement of cyclohexanone oxime: optimizing of the catalyst and reaction atmosphere, ***CATALYSIS TODAY***, **63** (2-4): 275 (**2000**).

128. Xu, BQ*; Cheng, SB; Zhang, X; Ying, SF; Zhu, QM; High temperature calcination for highly efficient and regenerable B_2O_3/ZrO_2 catalyst for the synthesis of ε-Caprolactam, ***CHEMICAL COMMUNICATIONS*** (13): 1121-1122 (**2000**).

129. Xu, BQ*; Sun, KQ; Zhu, QM; Sachtler, WMH; Unusual selectivity of oxygenate synthesis: formation of acetic acid from syngas over unpromoted Rh in NaY zeolite, ***CATALYSIS TODAY***, **63** (2-4): 453 (**2000**).

130. Wei, JM; Xu, BQ*; Li, JL; Cheng, ZX; Zhu, QM, Highly active and stable Ni/ZrO_2 catalyst for syngas production by CO_2 reforming of methane, ***APPLIED CTATALYSIS A -GENERAL***, **196**: L167 (**2000**).

131. Xu, BQ*; Cheng, SB; Jiang, S; Zhu, QM; Gas phase Beckmann rearrangement of cyclohexanone oxime over zirconia-supported boria catalyst, ***APPLIED CTATALYSIS A- GENERAL***: **188**: 361 (**2000**).

132. Wei, JM; Xu, BQ*; Li, JL; Cheng, ZX; Zhu, QM, Stable Ni/ZrO_2 catalyst for carbon dioxide reforming of methane, ***STUDY IN SURFACE SCIENCE AND CATALYSIS***, **130D**: 3687 (**2000**).

133. Wei, JM; Xu, BQ*; Li, JL; Cheng, ZX; Zhu, QM, A highly active and carbon-resistant catalyst for CH_4 reforming with CO_2—Nickel supported on an Ultra-Fine ZrO_2", ***Preprints of ACS Div. Petro. Chem. Symp.***, **45**, 18 (**2000**).

134. Su, CL; He, DH; Li, JR; Xu, BQ; Cheng, ZX; Zhu, QM, Relationship between formation of DME, CH_3OH, and i-C_4H_8 in isosynthesis, ***STUDY IN SURFACE SCIENCE AND CATALYSIS***, **130D**: 3735 (**2000**).

135. Xu BQ*; Cheng SB; Jiang S; Zhu QM, "Gas Phase Beckmann Rearrangement of Cyclohexanone Oxime over Zirconia-Supported Boria Catalyst", **APPLIED CATALYSIS A-GENERAL 188**, 361 (**1999**).

136. Xu, BQ*; Sood DS; Gelbaum LT; White ME, Toluene carbonylation catalyzed by mixtures of water and trifluoromethanesulfonic acid, ***JOURNAL OF CATALYSIS***, **186**: 345 (**1999**).

137. Xu, BQ; Sood DS; Iretskii AV; White ME, Direct synthesis of dimethylbiphenyls by toluene coupling in the presence of palladium triflate and triflic acid, ***JOURNAL OF CATALYSIS***, **187**: 358 (**1999**).

138. Xu, BQ; Sachtler WMH, Rh/NaY: A selective catalyst for direct synthesis of acetic acid from syngas, ***JOURNAL OF CATALYSIS***, **80**: 194 (**1998**).

139. Adeeva, V; Liu, H.; Xu BQ; Sachtler, WMH*; Alkane Isomerization over Sulfated Zirconia and Other Solid Acids, ***TOPICS IN CATALYSIS***, **6**, 61-76 (**1998**).

140. Xu, BQ*; Sachtler WMH; Reducibility of $SO_4^=$ ions in sulfated zirconia catalysts, ***JOURNAL OF CATALYSIS***, **167**: 224 (**1997**).

141. Xu, BQ; Sachtler WMH, Isomerization of n-Butane over deuterated sulfated zirconia catalyst, ***JOURNAL OF CATALYSIS***, **165**: 231 (**1997**).

142. Xu, BQ*; Sachtler WMH, TPR reduction of sulfated zirconia in the presence of Pt/NaY: migration of spiltover hydrogen, ***STUDY IN SURFACE SCIENCE AND CATALYSIS***, **122**: 229 (**1997**).

143. Yu, J; Xu, R; Kan, Q; Xu, Y; Xu, BQ, Synthesis and characterization of a novel boron-containing aluminium basic chloride,

JOURNAL OF MATERIAL CHEMISTRY, **3**: 77 (**1993**).

144. Xu, BQ*; Cai, TX; Liu, S, Selective dehydrogenation of ethanol to acetaldehyde over NaZSM-5 calcined at high temperature, ***REACTION KINETICS AND CATALYSIS LRTTERS***, **49**: 223 (**1993**).
145. Xu, BQ; Cai, TX; Yu, J; Xiao, FS; Xu, R. Selective synthesis of 2-butene from ethanol over alumino-borate B-C1 catalyst, ***JOURNAL OF CHEMICAL SOCIETY- CHEMICAL COMMUNICATIONS***, 1228 (**1992**).
146. Xu, BQ; Yang, M; Liang, J; Sheng, SS. Physico-chemical characterization and catalytic behavior of ZnO-NaZSM-5 catalyst, ***Proc. 9th Intern. Zeol. Conf.,*** R.von Ballmoos et al.(eds.), Butterworth-Heinemann,II, pp.599-607, **1992**.
147. Liang, J; Tan, W; Ying, ML; Zhao, SQ; Xu, BQ, Preparation and characterization of Zn-ZSM-5 catalyst, ***STUDY IN SURFACE SCIENCE AND CATALYSIS***, **69**: 207 (**1991**).
148. Xu, BQ; Yamaguchi T; Tanabe K, Acid-base bifunctional catalysis in the decomposition of alkylamines, ***APPLIED CTATALYSIS***, **75**: 75 (**1991**).
149. Xu, BQ*; Liang, J ; Zhao, SQ ; Chen, GQ, Formation of methane and ethylene in methanol conversion over HZSM-5 catalyst, ***Chinese Chem. Lett.*** **2**, 583-584 (**1991**).
150. Xu, BQ; Yamaguchi T; Tanabe K, Characteristic action of zirconium dioxide in the decomposition of alkylamines, ***Appl. Cata.*** **64,** 41-42(**1990**).
151. Xu, BQ; Yamaguchi T; Tanabe K, Dehydrogenation of alkylamines on acid-base hybrid catalyst, ***Chem. Lett.*** 149-150 (**1989**).
152. Xu, BQ; Yamaguchi T; Tanabe K; Selective dehydrogenation of alkylamines to nitriles over oxide catalysts, ***Chem. Lett.*** 281-282 (**1988**).
153. Xu, BQ; Yamaguchi T; Tanabe K, Acid-base bifunctional behavior of ZrO_2 in dual adsorption of CO_2 and NH_3, ***Chem. Lett.*** 1663-1664 (**1988**).
154. Xu, BQ; Yamaguchi T; Tanabe K, Temperature-programmed-desorption study of phenol from oxide surfaces, ***Mater. Chem. & Phys.*** **19**: 241 (**1988**).
155. Xu, BQ; Yamaguchi T; Tanabe K, Design and utilization of hybrid acid-base catalyst for the synthesis of nitrile from alkylamines, ***Shokubai (Catalyst)***, **30**, 76-79 (**1988**).
156. Xu, BQ; Yamaguchi T; Tanabe K; Formation of acetonitrile from triethylamine on oxide catalysts, ***Chem. Lett.*** 1053-1054 (**1987)**.