Curriculum Vitae

Meijun Li

Catalytic Chemist
Chemical Science Division
Oak Ridge National Laboratory
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Highlights of Qualifications

- Over 15 years expertise in heterogeneous catalysis, catalytic reactions in flow and batch reactors, inorganic and physical chemistry; nanomaterial synthesis including oxides and supported metals via various routes.
- >55 Journal publications, H-index 35, citations > 6000
- Expertise in *in situ/operando* spectroscopy including IR and Raman spectroscopy.
- Extensive experiences with variety analytical instruments including TEM, SEM, XRD, XRF, ICP, GC, MS, BET, TGA, UV-Vis spectroscopy etc.
- Well experienced in wet chemistry and basic lab techniques such as preparation of reagent & standard solution, material synthesis, and handing hazardous materials.
- Excellent computer skills including Microsoft Office, data processing, Photoshop, etc.
- Strong writing and oral communication skills.

Education

1997.9---2002.12 Ph.D., Physical Chemistry/Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China

1993.9---1997.7 BSc, Chemistry
Inner Mongolia Normal University, China

Professional Experience

Chemical Science Division, Oak Ridge National Lab *2019.01--- current*
Chemist

- Developed oxides supported noble metal catalysts for conversion of hydrocarbons into value chemicals via soft oxidants (N_2O, CO_2 and SO_2). Evaluate their catalytic
- Light alkane upgrading to liquid fuel over zeolite-based catalysts
- Ethanol upgrading to aviation fuel over zeolite-based catalysts
- performances using IR spectroscopy combined with isotopic labeling technique.
- Designed catalysts for methane conversion to methanol via oxy-esterification process.
- Nanomaterial synthesis.
- Performed mechanistic analysis with IR/MS, GC/MS, HPLC, isotopic labeling.

Department of Chemistry, University of Tennessee *2014.11--- 2018.08*
Research staff

- Design and synthesis nanomaterials that are potential candidates for CO_2 capture and catalytic conversion of acid gases.

- Extensively investigated the structure and surface properties of nanomaterials by using ICP, FT-IR, XRD, Raman, TGA and electron microscopy techniques.
- Performed or coordinated maintenance on all analytical equipment in the research lab
- Trained fresh graduated students in using spectroscopy, XRD and Chromatographs
- Processed and analyzed experimental data, and wrote papers for all the new findings

Department of Chemistry, University of Tennessee *2013.02--- 2014.05*
Director of Raman facility

- Raman spectroscopy instrument maintenance and operation
- Performed analysis for external users as well as writing reports summarizing the results of these analyses
- Performed analysis of samples to support cleaning validation, process validations, and research projects required
- Kept accurate records of all experimentation performed in the Raman Lab

Chemical Science Division, Oak Ridge National Lab *2007.10--- 2011.12*
Research associate

- Developed new type of phosphate supported Au catalysts for sub-ambient temperature CO oxidation Evaluate their catalytic performances using IR spectroscopy combined with isotopic labeling technique.
- Synthesis of nanosized CeO_2 with different morphologies (cubes, octahedra and rods)
- Performed mechanistic analysis with IR/MS, GC/MS, HPLC, isotopic labeling

Institute for Environmental Catalysis, Northwestern University *2003.9---2006.12*
Research associate

- Developed Ba-Y, Ba/Al_2O_3, Ba/TiO_2, Ag-Y and Ag/Al_2O_3 catalysts for deNOx process.
- Test catalytic performances by GC, ICP, IR, MS/TPD, MS/TPR, and isotopic labeling techniques

Physical Chemistry/Catalysis, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China *1997.9---2002.12*
Ph.D. candidate,
Advisors: Profs. Can Li and Qin Xin
Project: "UV Raman spectroscopic studies on the phase structure and phase transformation of zirconia and doped zirconia". Synthesized zirconia-based materials that are potential candidates as environment friendly super acid. Extensively investigated the phase transformation and surface properties of both zirconia and different stabilizers (including Y_2O_3 and La_2O_3) – doped zirconia by using UV Raman spectroscopy, XRD, XPS and IR techniques.

Selected Publications (> 60, citation > 6900, H-index 36)

1. J. Zhang, E. C. Wegener, N. R. Samad, J. W. Harris, K. A. Unocic, L. F. Allard, S. Purdy, Sh. Adhikari, M. J. Cordon, J. T. Miller, T. R. Krause, S. Cheng, D. Liu, **M. Li**, X. Jiang, Z. Wu, and Z. Li*; Isolated Metal Sites in Cu–Zn–Y/Beta for Direct and Selective Butene-Rich C3+ Olefin Formation from Ethanol. *ACS Catal.* **2021**, 11, 9885–9897.
2. **M Li**, M Tian, H Chen, SM Mahurin, Z Wu, S Dai; H_2O-prompted CO_2 capture on metal silicates in situ generated from SBA-15. *Rsc Advances*, **2020**, 10, 28731-28740.
3. K Jie, H Chen, P Zhang, W Guo, **M Li**, Z Yang, S Dai; A benzoquinone-derived porous hydrophenazine framework for efficient and reversible iodine capture. *Chemical Communications*, **2020,** 54, 12706-12709.

4. **M Li,** K Huang, JA Schott, Z Wu, S Dai; Effect of metal oxides modification on CO 2 adsorption performance over mesoporous carbon. *Micro. Meso. Mater*. **2017**, *249*, 34-41.
5. K Huang, L Liang, S Chai, U Tumuluri, **M Li**, Z Wu, BG Sumpter, S Dai. Aminopolymer functionalization of boron nitride nanosheets for highly efficient capture of carbon dioxide. *J. Mater. Chem. A* **2017**, *5*, 16241-16248.
6. S Ding, C Tian, X Zhu, CW Abney, Z Tian, B Chen, **M Li,** D Jiang, N Zhang, S. Dai. Pd-Metalated Conjugated Nanoporous Polycarbazoles for Additive-Free Cyanation of Aryl Halides: Boosting Catalytic Efficiency through Spatial Modulation. *ChemSusChem* **2017,** *10*, 2348-2351.
7. GS Foo, G Hu, ZD Hood, **M Li**, D Jiang, Z Wu. Kinetics and Mechanism of Methanol Conversion over Anatase Titania Nanoshapes. *ACS Catal.* **2017**, *7*, 5345-5356.
8. L Gill, A Beste, B Chen, **M Li**, AKP Mann, SH Overbury, EW Hagaman. Fast MAS 1H NMR Study of Water Adsorption and Dissociation on the (100) Surface of Ceria Nanocubes: A Fully Hydroxylated, Hydrophobic Ceria Surface. *J. Phys. Chem. C* **2017**, *121*, 7450-7465.
9. U Tumuluri, JD Howe, WP Mounfield III, **M Li**, M Chi, ZD Hood, KS Walton, S. Dai, Z. Wu. Effect of Surface Structure of TiO2 Nanoparticles on CO2 Adsorption and SO2 Resistance. *ACS Sus. Chem. Eng.* **2017**, *5*, 9295-9306
10. Mounfield, WP; Tumuluri, U; Jiao, Y; **Li, M.J**.; Dai, S; Wu, Z.L.; Walton, KS; Role of defects and metal coordination on adsorption of acid gases in MOFs and metal oxides: An in situ IR spectroscopic study. *Micro. Meso. Mater*. **2016**, 227, 65-75.
11. Zhu WS; Gao, X.; Li, Q.; Li, HP; Chao, YH; **Li, M.J.**; Mahurin, S.; Li, HM; Zhu, HY; Dai, S. Controlled Gas Exfoliation of Boron Nitride into Few-Layered Nanosheets. *Angew. Chem. Int. Ed.* **2016**, 55, 10766-10770.
12. Brown. S.; Chatterjee, S.; **Li, M.J.**; Yue, Y. F.; Tsouris, C.; Janke, C.J.; Saito, T.; Dai, S.; Uranium Adsorbent Fibers Prepared by Atom-Transfer Radical Polymerization from Chlorinated Polypropylene and Polyethylene Trunk Fibers. *Indus. & Eng. Chem. Res.* **2016**, 55, 4130-4138.
13. Tumuluri U.; **Li, M.J.**; Cook, B. G.; Sumpter B.; Dai, S.; Wu, Z. L.; Surface Structure Dependence of SO_2 Interaction with Ceria Nanocrystals with Well-Defined Surface Facets. *J. Phys. Chem. C*, **2015**, 119, 28895-28905.
14. **Li, M. J.**; Tumuluri U.; Wu, Z. L.; Dai, S.; Effect of Dopants on the Adsorption of Carbon Dioxide on Ceria Surfaces. *ChemSusChem*, **2015**, 8, 3651-3660.