

Ling Zang, PhD

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Education:

1991 B.S. Department of Chemistry, Tsinghua University, Beijing, China.
1995 Ph.D. Chinese Academy of Sciences, Beijing, China.

Professional Experience:

2014.1 – present, Professor, Dept of Mater Sci and Eng, University of Utah.
2012.7 – present, Adjunct faculty, Department of Chemistry, University of Utah.
2008.8 – present, USTAR faculty, Nano Institute of Utah, University of Utah.
2019.1 – present, Adjunct Professor, Shaanxi University of Science and Technology, China
2019.5 – present, Adjunct Professor, China University of Mining and Technology, China
2008.8 – 2013.12, Associate Professor (tenure), Dept of Mater Sci and Eng, University of Utah.
2008.7 – 2008.8, Associate Professor (tenure), Southern Illinois University.
2003.8 – 2008.6, Assistant Professor, Southern Illinois University.
2001.4 – 2003.7, Postdoc Research Fellow/Senior Scientist, Columbia University.
1998.4 – 2001.3, Postdoc Research Fellow, Bowling Green State University.
1996.7 – 1998.3, Alexander von Humboldt Fellow, Erlangen-Nuremberg University, Germany.
2011 – present, Founder, Vaporsens Inc. (now a company of Gentex)
2010 – present, Director, Utah Center for Interfacial Sciences, Nano Institute of Utah

Research Interests:

Self-assembly of Nanostructures, Organic Nanowires and Nanodevices, Surface Nanopatterning, Nanojunction Charge Transfer, Nanoscale Imaging, Single-Molecule Spectroscopy, Single-Molecule Sensing and Probing, Fluorescence Sensing, Optoelectronic Sensing, Explosives Detection, Organic Photovoltaics & Solar Cells

Honors and Awards:

2020 Fellow, National Academy of Inventors
2012 Overseas Expert, presented by the President, Chinese Academy of Sciences.
2007 CAREER Award, NSF.
2003 Research Fellowship, K. C. Wong Foundation (Hong Kong).
1996 Alexander von Humboldt Research Fellowship, Germany,

Recent Synergistic Activities:

Associate Editor: Science of Advanced Materials (2013-).

Editorial Board: Nature Scientific Reports (2014-); Chemosensors (2020-).

Chair: 2012 NanoUtah Conference; 2014 International Symposium on Nanoscience and Nanoengineering: Nanomaterials for Renewable Energy and Clean Environment.

Session Chair for conferences: 2010 AIChE Annual Meeting, SLC; 2016 Materials Science & Technology Conference; the 21st International Symposium on Surfactants in Solution (SIS2016); 4th China-US Symposium on Energy (2017).

Organization Committee of conferences: Nano Utah Conference 2010 and 2011, 2011 SOLARIS International Conference (Czech Republic); The 1st International Electronic Conference on Chemical Sensors and Analytical Chemistry (CSAC2021).

Plenary talks at international conferences: 2013 Trace Explosive Detection, 4th National Conference on Porphyrins and Phthalocyanines, China, 2017. International Symposium on Nanoscience and Nanotechnology in Environment (ISNNE), Xi'an, China, 2019.

Co-chair: USTAR Renewable Energy Cluster Initiative on Organic Photovoltaics, 2009-2010.

Invited talks: over 50 times at universities and research institutes worldwide (including Northwestern, Universities of California, University of Würzburg, Tsinghua University, Peking university, Berkeley National Lab, Max Planck Institute, institutes of Chinese Academy of Sciences, etc.), about 40 times at various national and international conferences, such as ACS National Meeting, PITCON Conference, ECS Meeting, Pacificchem, Nanoelectronic Devices for Defense & Security (NANO-DDS) Conference, SciX, NanoTechnology for Defense Conference (NT4D), Chemical and Biological Defense Science & Technology (CBD S&T) Conference, etc.

Publications and Patents:

- 139 papers published, including 16 in *J. Am. Chem. Soc.*, 2 reviews in *Accounts of Chemical Research*, 1 review in *Chemical Reviews*, 1 Perspective in *J. Phys. Chem. Lett.*, and many others in *Angew. Chem.*, *Chem. Commun.*, *Nature Commun.*, *Nano Lett.*, *ACS Nano*, etc.
- Papers have been cited close to 5000 times since 2016 (as of Dec. 2020, Google Scholar).
- The top cited 40 papers have ca. 220 citations each on average (as of Dec. 2020, Google Scholar).
- 1 book, Ling Zang, Ed., *Energy Efficiency and Renewable Energy through Nanotechnology*, 2011, Springer-Verlag. 2 Book Chapters.
- Close to 30 IP disclosures (patents issued or pending), about half of them have been licensed to industry.

Selected Recent Papers:

1. Nan Gao, Jiarui Yu, Shuai Chen,* Xing Xin, Ling Zang*, Interfacial polymerization for controllable fabrication of nanostructured conducting polymers and their composites, *Synthetic Metals*, 273 (2021) 116693. <https://doi.org/10.1016/j.synthmet.2020.116693>.
2. Miao Zhang, Jiangfan Shi, Chenglong Liao, Qingyun Tian, Chuanyi Wang, Shuai Chen*, Ling Zang*, Perylene Imide-based Optical Chemosensors for Vapor Detection (Invited Review), *Chemosensors*, 9 (2021) 1-26; <https://doi.org/10.3390/chemosensors9010001>.
3. Liping Yang, Pengyuan Wang, Shangwei Zhang, Yuanhao Wang, Ling Zang, Hui Zhu, Jiao Yin* and Hui Ying Yang*, Flexible and additive-free organic electrodes for aqueous sodium ion batteries, *J. Mater. Chem. A*, 8 (2020) 22791-22801.
4. Yu Xue, Shuai Chen*, Jiarui Yu, Benjamin R. Bunes, Zexu Xue, Jingkun Xu, Baoyang Lu*, and Ling Zang*, Nanostructured Conducting Polymers and Their Composites: Synthesis Methodologies, Morphologies and Applications (**Review**), *J. Mater. Chem. C*, 8 (2020) 10136-10159.
5. Shuai Chen, Xueze Xu, Nan Gao, Xiaomei Yang, Ling Zang*, Perylene Diimide-based Fluorescent and Colorimetric Sensors for Environmental Detection (**Invited Review**), *Sensors*, 20 (2020) 917.

6. Hao Fu, Hongyun Shao, Liwei Wang*, Han Jin*, Dehua Xia, Shengwei Deng, Yinghui Wang, Yi Chen, Changzhou Hua, Li Liu, Ling Zang*, From Relative Hydrophobic and Triethylamine (TEA) Adsorption Preferred Core-shell Heterostructure to Humidity Resistance and TEA Highly Selective Sensing Prototype: An Alternative Approach to Improve the Sensing Characteristics of TEA Sensors, *ACS Sensors*, **5** (2020) 571-579.
7. Zexu Xue, Shuai Chen*, Nan Gao, Yu Xue, Baoyang Lu, Olivia Anielle Watson, Ling Zang*, Jingkun Xu*, Structural Design and Applications of Stereoregular Fused Thiophenes and Their Oligomers and Polymers (**Review**), *Polymer Reviews*, **60** (2020) 318-358. <https://doi.org/10.1080/15583724.2019.1673404>
8. Zexu Xue, Shuai Chen*, Yu Xue, Olivia Anielle Watson, Ling Zang*, Tunable nanofibril heterojunctions for controlling interfacial charge transfer in chemiresistive gas sensors (invited Review), *J. Mater. Chem. C*, **7** (2019) 13709-13735
9. Liping Yang, Maomao Wang, Paul M. Slattum, Benjamin R. Bunes, Yuanhao Wang*, Chuanyi Wang,* and Ling Zang,* Donor-Acceptor Supramolecular Organic Nanofibers as Visible Light Photoelectrocatalyst for Hydrogen Production, *ACS Appl. Mater. Interfaces*, **10** (2018) 19764-19772.
10. Yonghui Wang, Defang Xu, Huaizhi Gao, Ying Wang, Xingliang Liu,* Aixia Han, Chao Zhang, Ling Zang*, Twisted Donor–Acceptor Cruciform Luminophores Possessing Substituent-Dependent Properties of Aggregation-Induced Emission and Mechanofluorochromism. *J. Phys. Chem. C*, **122** (2018) 2297-2306.
11. Na Wu, Yaqiong Zhang, Chen Wang, Paul M. Slattum, Xiaomei Yang, and Ling Zang*, Thermo-activated Electrical Conductivity in Perylene Diimide Nanofiber Materials, *J. Phys. Chem. Lett.*, **8** (2017) 292-298.
12. Na Wu, Chen Wang, Paul M. Slattum, Yaqiong Zhang, Xiaomei Yang, Ling Zang*, Persistent Photoconductivity in Perylene Diimide Nanofiber Materials, *ACS Energy Letters*, **1** (2016) 906-912.
13. Daniel L. Jacobs, Ling Zang*, Thermally Induced Recrystallization of MAPbI₃ Perovskite Under Methylamine Atmosphere: An Approach to Fabricating Large Uniform Crystalline Grains, *Chem. Commun.*, **52** (2016) 10743-10746.
14. Chen Wang, Benjamin R. Bunes, Miao Xu, Na Wu, Xiaomei Yang, Dustin E. Gross, Ling Zang*, Interfacial Donor-acceptor Nanofibril Composites for Selective Alkane Vapor Detection, *ACS Sensors*, **1** (2016) 552-559.
15. Ling Zang, Interfacial Donor–Acceptor Engineering of Nanofiber Materials To Achieve Photoconductivity and Applications, *Accounts of Chemical Research*, **48** (2015) 2705-2714.
16. Shuai Chen, Paul Slattum, Chuanyi Wang*, Ling Zang*, Self-Assembly of Perylene Imide Molecules into 1D Nanostructures: Methods, Morphologies and Applications, *Chem. Rev.*, **115** (2015) 11967-98.
17. Ji-Min Han, Miao Xu, Brian Wang, Na Wu, Xiaomei Yang, Haori Yang, Bill J. Salter and Ling Zang*, Low Dose Detection of Gamma Radiation via Solvent Assisted Fluorescence Quenching, *J. Am. Chem. Soc.*, **136** (2014) 5090-5096.
18. Helin Huang, Ching-En Chou, Yanke Che, Ligui Li, Chen Wang, Xiaomei Yang, Zhonghua Peng*, and Ling Zang*, Morphology control of nanofibril donor-acceptor heterojunction to achieve high photoconductivity: exploration of new molecular design rule, *J. Am. Chem. Soc.*, **135** (2013) 16490-16496.

19. Yanke Che, Dustin E. Gross, Helin Huang, Dongjiang Yang, Xiaomei Yang, Emre Discekici, Zheng Xue, Huijun Zhao, Jeffrey S. Moore*, Ling Zang*, Diffusion-Controlled Detection of TNT: Interior Nanoporous Structure and Low HOMO Level of Building Blocks Enhance Selectivity and Sensitivity, *J. Am. Chem. Soc.*, **134** (2012) 4978-4982.
20. Ismael Díez-Pérez, Zhihai Li, Shaoyin Guo, Christopher Madden, Helin Huang, Yanke Che, Xiaomei Yang, Ling Zang*, Nongjian Tao*, Ambipolar Transport in an Electrochemically-gated Single-Molecule Field Effect Transistor, *ACS Nano*, **6** (2012) 7044-7052.
21. Yanke Che, Helin Huang, Miao Xu, Chengyi Zhang, Benjamin R. Bunes, Xiaomei Yang, Ling Zang*, Interfacial Engineering of Organic Nanofibril Heterojunctions into Highly Photoconductive Materials, *J. Am. Chem. Soc.*, **133** (2011) 1087-1091.
22. Zengxing Zhang, Yanke Che, Ronald A. Smaldone, Benjamin R. Bunes, Jeffrey S. Moore,* Ling Zang,* Reversible Dispersion and Release of Carbon Nanotubes Using Foldable Oligomers, *J. Am. Chem. Soc.* **132** (2010) 14113–14117.
23. Ismael Diez-Perez, Zhihai Li, Joshua Hihath, Jinghong Li*, Chengyi Zhang, Xiaomei Yang, Ling Zang*, Yijun Dai, Xinliang Feng, Klaus Muellen* and Nongjian Tao,* Gate-controlled electron transport in coronenes as a bottom-up approach towards graphene transistors, *Nature Communications.*, **1**, 1–5 (2010) DOI: 10.1038/ncomms1029.
24. Yanke Che, Xiaomei Yang, Guilin Liu, Chun Yu, Hongwei Ji, Jianmin Zuo, Jincui Zhao,* and Ling Zang*, Ultrathin N-type Organic Nanobelts with High Photoconductivity and Application in Optoelectronic Vapor Sensing of Explosives, *J. Am. Chem. Soc.* **132** (2010) 5743-5750.