Curriculum Vitae

Yaping Zang

Professor
Institute of Chemistry, Chinese Academy of Sciences
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Professional Appointments

Professor, Institute of Chemistry, Chinese Academy of Sciences 2019.10-present

Postdoc Research Scientist, Department of Applied Physics, Columbia University 2016.8-2019.9

- Supervisor: Prof. Latha Venkataraman
- Research Area: Single-molecule manipulation of chemical reactions.

Professional Preparation

Institute of Chemistry, Chinese Academy of Sciences (ICCAS) Chemistry Ph.D., 2016

- Supervisor: Prof. Daoben Zhu and Prof. Chong-An Di
- Thesis: Design, fabricate and characterization of organic field-effect transistor based sensors

Qilu University of Technology Applied Chemistry B. E., 2011

Awards

- Blavatnik regional award finalist for young scientists 2019
- Shortlisted participants of the Asian Dean's Forum 2018-The Rising Stars Women in Engineering Workshop, Hong Kong University of Science and Technology 2018
- Outstanding doctoral dissertation award, Chinese Academy of Sciences 2017
- Special Prize of President Scholarship (Top <1%), Chinese Academy of Sciences 2016
- Outstanding Graduate Award, Chinese Academy of Sciences 2016
- SABIC-CAS Scholarship, Chinese Academy of Sciences 2016
- Chu-Li-Yuet-Wah Outstanding Doctoral Scholarship, Chinese Academy of Sciences 2015
- Special Prize of Director Scholarship (Top <1%), ICCAS 2015
- ICCAS Young Scientists Award, ICCAS 2015
- National Scholarship, Chinese Ministry of Education 2014

Publications

[1] **Y. P. Zang,** Q. Zou,* T. Fu, F. Ng, B. Fowler, J. Yang, H. Li, M. L. Steigerwald,*, C. Nuckolls* and L. Venkataraman* Directing isomerization reactions of cumulenes with electric fields. *Nat. Commun.* **2019,** *10,* 4482.

[2] **Y. P. Zang,**† I. Stone,† M. S. Inkpen, Z. F. Liu, F. Ng, T. H. Lambert. C. Nuckolls, M. L. Steigerwald, X. Roy* and L. Venkataraman* In situ coupling of single molecules driven by Au-

catalyzed electrooxidation. *Angew. Chem. Int. Ed.* **2019,** *58*, 1.

– Selected as a Very Important Paper (VIP) *in Angew. Chem. Int. Ed.*

[3] **Y. P. Zang,**† S. Ray,† E-D. Fung, M. H. Garner, M. L. Steigerwald, G. C. Solomon,* S. Patil* and L. Venkataraman* Resonant transport in single-Diketopyrrolopyrrole junctions. *J. Am. Chem. Soc.* **2018,** *140*, 13167.

[4] H. G. Shen, Y. Zou, **Y. P. Zang,** D. Z. Huang, W. L. Jin, C-A Di* and D. B. Zhu,* Molecular antenna tailored organic thin-film transistors for sensing applications. *Mater. Horiz.* **2018,** *5,* 240.

[5] X. D. Yin,† **Y. P. Zang,**† L. L. Zhu,† J. Z. Low, Z. F. Liu, J. Cui, J. B. Neaton, L. Venkataraman,* and L. M. Campos* A reversible single-molecule switch based on activated antiaromaticity. *Sci. Adv.* **2017,** *3,* eaao2615.

– Highlighted by C&E News (vol 9, issue 44, p11).

[6] **Y. P. Zang,**† A. Pinkard,† Z. F. Liu, J. B. Neaton, M. L. Steigerwald, X. Roy* and L. Venkataraman* Electronically transparent Au–N bonds for molecular junctions. *J. Am. Chem. Soc.* **2017,** *139,* 14845.

[7] **Y. P. Zang,** H. G. Shen,† D. Z. Huang, C. A. Di,* and D. B. Zhu* A dual-organic-transistor-based tactile perception system with signal-processing functionality. *Adv. Mater.* **2017,** *29,* 1606088.

– Highlighted by *Nat. Rev. Mater*. Organic electronics: Under pressure.

[8] **Y. P. Zang,** D. Z. Huang, C. A. Di,* and D. B. Zhu,* Device engineered organic transistors for flexible sensing applications. *Adv. Mater.* **2016,** *28,* 4549.

– The special issue of "Flexible and stretchable devices"

[9] C. Zhang,† **Y. P. Zang,**† F. J. Zhang, Y. Diao, C. R. McNeill, C. A. Di,* X. Z. Zhu* and D. B. Zhu, Pursuing high-mobility n-type organic semiconductors by Combination of "molecule-framework" and "side-chain" engineering. *Adv. Mater.* **2016,** *28,* 8456.

[10] D. Z. Huang, C. Wang, Y. Zou, X. X. Shen, **Y. P. Zang,** H. G. Shen, X. K. Gao, Y. P. Yi, W. Xu, C. A. Di,* and D. B. Zhu,* Bismuth interfacial doping of organic small molecules for high performance n-type thermoelectric materials, *Angew. Chem. Int. Ed.* **2016,** *55,* 10672.

[11] **Y. P. Zang,** F. J. Zhang, D. Z. Huang, X. K. Gao, C. A. Di,* and D. B. Zhu,* Flexible suspended gate organic thin-film transistors for ultra-sensitive pressure detection. *Nat. Commun.* **2015,** *6,* 6269.

– ESI highly cited paper, Top 1%

[12] F. J. Zhang,† **Y. P. Zang,**† D. Z. Huang, C. A. Di,* and D. B. Zhu,* Flexible and self-powered temperature and pressure dual-parameter sensors using microstructure-frame-supported organic thermoelectric materials. *Nat. Commun.* **2015,** *6,* 8356.

[13] **Y. P. Zang,** F. J. Zhang, D. Z. Huang, C. A. Di,* and D. B. Zhu,* Sensitive flexible magnetic sensors using organic transistors with magnetic-functionalized suspended gate electrodes. *Adv. Mater.* **2015,** *27,* 7979.

– Hot Topics in Magnetic Materials, Wiley

[14] **Y. P. Zang,** F. J. Zhang, C. A. Di,* and D. B. Zhu,* Advances of flexible pressure sensors toward artificial intelligence and health care applications. *Mater. Horiz.* **2015,** *2,* 140.

– Cover, ESI highly cited paper, Top 1%

[15] F. J. Zhang, **Y. P. Zang,** D. Z. Huang, C. A. Di,* X. K. Gao, H. Sirringhaus, and D. B. Zhu,* Modulating thermoelectric properties of organic semiconductors using field-effect transistors. *Adv. Funct. Mater.* **2015,** *25,* 3004.

[16] Y. Zhao, X. K. Zhao, **Y. P. Zang,** C. A. Di, Y. Diao and J. G. Mei,* Conjugation-break spacers in semiconducting polymers: impact on polymer processability and charge transport properties, *Macromolecules,* **2015,** *48,* 2048. □

[17] D. Z. Huang, Y. Zou, F. Jiao, F. J. Zhang, **Y. P. Zang,** C. A. Di,* W. Xu* and D. B. Zhu,* Interface-located photothermoelectric effect of organic thermoelectric materials in enabling NIR detection, *ACS Appl. Mater. Interfaces* **2015,** *7,* 8968.

[18] **Y. P. Zang,** F. J. Zhang, D. Z. Huang, C. A. Di,* Q. Meng, X. K. Gao* and D. B. Zhu,* Specific and reproducible gas sensors utilizing gas-phase chemical reaction on organic transistors. *Adv. Mater.* **2014,** *26,* 2862.

– Highlighted by *Materials Views China*

[19] C. Zhang, **Y. P. Zang,** E. Gann, C. R. McNeill, X. Z. Zhu,* C. A. Di* and D. B. Zhu, Two-dimensional π-expanded quinoidal terthiophenes terminated with dicyanomethylenes as n-type semiconductors for high-performance organic thin-film transistors. *J. Am. Chem. Soc.* **2014,** *136,* 16176.

[20] C. Wang, **Y. P. Zang,** Y. K. Qin, Q. Zhang, Y. H. Sun, C. A. Di,* W. Xu* and D. B. Zhu,* Thieno[3,2-b]thiophene-diketopyrrolopyrrole-based quinoidal small molecules: synthesis, characterization, redox behavior, and n-channel organic field-effect transistors. *Chem.-Eur. J.* **2014,** *20,* 13755.

[21] F. Jiao, F. J. Zhang, **Y. P. Zang,** Y. Zou, C. A. Di,* W. Xu* and D. B. Zhu,* An easily accessible carbon material derived from carbonization of polyacrylonitrile ultrathin films: ambipolar transport properties and application in a CMOS-like inverter. *Chem. Commun.* **2014,** *50,* 2374.

[22] Q. Meng,* F. J. Zhang, **Y. P. Zang,** D. Z. Huang, Y. Zou, J. Liu, G. Y. Zhao, Z. R.Wang, D. Y. Ji, C. A. Di,* W. P. Hu* and D. B. Zhu, Solution-sheared ultrathin films for highly-sensitive ammonia detection using organic thin-film transistors. *J. Mater. Chem. C* **2014,** *2,* 1264.

[23] J. Y. Yuan, **Y. P. Zang,** H. L. Dong, G. J. Liu, C. A. Di,* Y. Y. Li and W. L. Ma,* Effect of a furan p-bridge on polymer coplanarity and performance in organic field effect transistors. *Polym. Chem.* **2013,** *4,* 4199.

Presentations

- Invited Seminar, Rutgers University-New brunswick — Apr. 2019
- Invited Seminar, Yale University — Jan. 2019
- Invited Seminar, University of Massachusetts, Amherst — Jan. 2019
- Invited Seminar, Rutgers University-Newark — Dec. 2018
- Materials Research Science and Engineering Center (MRSEC) Seminar, Columbia University — Oct. 2018
- Moments in Materials Seminar, Columbia University — June 2018
- The 255th American Chemical Society National Meeting, New Orleans, USA — Mar. 2018

- MRSEC Seminar, Columbia University Mar. 2018
- Invited Seminar at National Center for Nanoscience and Technology, Beijing, China June 2017
- Invited Seminar at Institute of Chemistry, Chinese Academy of Sciences, Beijing, China June 2017
- The 253th American Chemical Society National Meeting, San Francisco, USA Apr. 2017
- The Applied Physics Research Conference, Columbia University Apr. 2017

Outreach activities

- The School at Columbia University, Columbia University Mar. 2018
- Harlem Children's Zone Promise Academy and PhD for a Day, New York, Dec. 2017
- Girls' Science Day, Columbia University Nov. 2017
- Harlem Children's Zone Promise Academy and PhD for a Day, New York, Dec. 2016
- Girls' Science Day, Columbia University Nov. 2016

Professional Services

- Member of American Chemical Society, Member of Chinese Chemical Society
- Reviewer for *Advanced Materials, Advanced Functional Materials, Sensors, Topics in Current Chemistry, IEEE Transactions on Electron Devices*
- Committee member for the oral defense of Mr. Zhibing Tan from Prof. Wenjing Hong's Lab at Xiamen University