

## Honghai Zhang

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### Professional Preparation

Nanjing University, Nanjing, China	Chemistry	B.Sc. 2005
Shanghai Institute of Organic Chemistry, Chinese Academy of China, Shanghai, China	Organic Chemistry	Ph.D., 2010
Advisor: Professor Long Lu		
College of Staten Island, New York City, NY	Post-Doctoral	2011-2014
Oak Ridge National Laboratory, Oak Ridge, TN	Post-Doctoral	2014-2017

### Professional Experience

November 2021 – Present:	R&D Associate Staff, ORNL, Oak Ridge, TN
August 2017 – November 2021:	Professor, Nanjing Tech. University, Nanjing, China
July 2010 – May 2011:	Senior Scientist, WuXi apptech. Inc. Shanghai, China

### Publications: (Google Scholar: Total 33 Publications; Including 24 Publications as Corresponding Author or First Author; Total Citation from Google Scholar: 630; h-index: 16; i-10 index: 19)

1. Jing-Wen bai, Lei Guo, Meng-Zhe Chen, Rigoberto Advincula, **Hong-Hai Zhang\***, “Cu(II)-Catalyzed H/D exchange of indole derivatives” *Tetrahedron Lett.* **2024**, *135*, 154884-154888.
2. Riddhi S. Shah, Manjula Senanayake, **Hong-Hai Zhang**, Yunqiao Pu, Ajaya K. Biswal, Sai Venkatesh Pingali, Brian Davison, Hugh O’Neill, “Evidence for Lignin-Carbohydrate Complexes from Studies of Transgenic Switchgrass and a Model Lignin-Pectin Composite” *ACS Sustainable Chem. Eng.* **2023**, *11*, 15941-15950.
3. Jeffrey C. Foster, Joshua T. Damron, **Honghai Zhang**, “Simple Monomers for Precise Polymer Functionalization During Ring-Opening Metathesis Polymerization” *Macromolecules* **2023**, *56*, 7931-7938.
4. Jian-Guo Gu, Cai-Xia Wang, Guang-Qi Hu, Kang Shen, **Hong-Hai Zhang\***, “K<sub>2</sub>CO<sub>3</sub>/18-Crown-6-Catalyzed Selective H/D Exchange of Heteroarenes with Bromide a Removable Directing group” *Org. Lett.* **2023**, *25*, 3055-3059.
5. Fei-Fei Sheng, Jian-Guo Gu, Kai-Hui Liu, **Hong-Hai Zhang\***, “Synthesis of  $\beta$ -Deuterated Amino Acids via Palladium-Catalyzed H/D Exchange” *J. Org. Chem.* **2022**, *87*, 16084-16089. (Featured by *Synfacts* and *Organic Chemistry Portal*)
6. Cai-Xia Wang, Fei-Fei Sheng, Kai-Hui Liu, Jian-Guo Gu, Kang Shen, Zheng-Yi Sun, Kunlun Hong, **Hong-Hai Zhang\***, “Bromide as the Directing Group for  $\beta$ -Arylation of Thiophenes” *Synthesis* **2022**, *54*, 4025-4032.
7. Guangrui Shen, Ling Wang, Xia Wu, Peng Yuan, Yumin Tang, Yumeng Chen, Xiao-Chun Hang, Zhi-Kuan Chen, **Hong-Hai Zhang\*** and Zhengyi Sun, “Fused perylene diimide-based polymeric acceptors with different  $\pi$ -conjugation and molecular conformation in all polymer solar cells” *Dye and Pigments* **2022**, *204*, 110462.
8. Fei-Fei Sheng, En-Ci Li, Jing-Wen Bai, Cai-Xia Wang, Guang-Qi Hu, Kai-Hui Liu, Zheng-Yi Sun, Kang Shen and **Hong-Hai Zhang\***, “Silver salt enabled H/D exchange at the  $\beta$ -position of thiophene rings: synthesis of fully deuterated thiophene derivatives” *Org. Biomol. Chem.* **2022**, *20*, 1176-1180.
9. Kai-Hui Liu, Guang-Qi Hu, Cai-Xia Wang, Fei-Fei Sheng, Jing-Wen Bai, Jian-Guo Gu, and **Hong-Hai Zhang\***, “C-H Bond Functionalization of (Hetero)aryl Bromide Enabled Synthesis of Brominated Biaryl Compounds” *Org. Lett.* **2021**, *23*, 5626-5630.
10. Guang-Qi Hu, Jing-Wen Bai, En-Ci Li, Kai-Hui Liu, Fei-Fei Sheng and **Hong-Hai Zhang\***, “Synthesis of Multideuterated (Hetero)aryl Bromides by Ag(I)-Catalyzed H/D Exchange” *Org. Lett.* **2021**, *23*, 1554-1560.

11. Ding-Chuan Wu, Jing-Wen Bai, Lei Guo, Guang-Qi Hu, Kai-Hui Liu, Fei-Fei Sheng, **Hong-Hai Zhang\***, Zheng-Yi Sun, Kang Shen\* and Xiang Liu\*, “A practical and efficient method for late-stage deuteration of terminal alkynes with silver salt as catalyst” *Tetrahedron Lett.* **2021**, *66*, 152807-152890.
12. Kaiwu Yu, Rui Zhou, Yangyang Xu, Yan Zhong, Shufang Qian, **Honghai Zhang**, Haibin Shi, Qinggang He, Zhengwei Mao, Haoke Zhang, Yen Wei, Hong Zhang, Mei Tian, “A Mitochondria-targeted AIEgen Labelled with <sup>18</sup>F for Breast Cancer Cell Imaging and Therapy” *Chem. Asian J.* **2021**, *16*, 3963-3969.
13. Wang Xie, Jie Wu, Xiaochun Hang, **Honghai Zhang**, Zhoulu Wang, “Four Novel d10 Metal-Organic Frameworks Incorporating Amino-Functionalized Carboxylate Ligands: Synthesis, Structures, and Fluorescence Properties” *Front. Chem.* **2021**, *9*, 708314.
14. Guang-Qi Hu, En-Ci Li, **Hong-Hai Zhang\*** and Wei Huang, “Ag(I)-Mediated hydrogen isotope exchange of mono-fluorinated (hetero)arenes” *Org. Biomol. Chem.* **2020**, *18*, 6627-6633.
15. En-Ci Li, Guang-Qi Hu, Yu-Xing Zhu, **Hong-Hai Zhang\***, Kang Shen, Xiao-Chun Hang, Cong Zhang\* and Wei Huang\*, “Ag<sub>2</sub>CO<sub>3</sub>-Catalyzed H/D Exchange of Five-Membered Heteroarenes at Ambient Temperature” *Org. Lett.* **2019**, *21*, 6745-6749.
16. Lei Guo, Chen Xu, Ding-Chuan Wu, Guang-Qi Hu, **Hong-Hai Zhang\***, Kunlun Hong, Su Chen and Xiang Liu\*, “Cascade alkylation and deuteration with aryl iodides via Pd/norbornene catalysis: an efficient method for the synthesis of congested deuterium-labeled arenes” *Chem. Commun.* **2019**, *55*, 8567-8570.
17. Yu-Xing Zhu, En-Ci Li, Kang Shen, Xiaochun Hang, Peter V. Bonnesen, Kunlun Hong, **Hong-Hai Zhang\*** and Wei Huang, “Intramolecular Catalyst Transfer over Sterically Hindered Arenes in Suzuki Cross-Coupling Reactions” *Asian J. Org. Chem.* **2019**, *8*, 1506-1512.
18. Huili Ma, Kang Shen, Yipei Wu, Fang Xia, Feiling Yu, Zhengyi Sun, Chunyue Qian, Qiming Peng, **Hong-Hai Zhang**, Cong You, Guohua Xie, Xiao-Chun Hang and Wei Huang, “High-color-purity and efficient solution-processable blue phosphorescent light-emitting diodes with Pt(II) complexes featuring 3ππ\* transitions” *Mater. Chem. Front.*, **2019**, *3*, 2448-2454.
19. **Hong-Hai Zhang\***, Yu-Xing Zhu, Weiyu Wang, Jiahua Zhu, Peter V. Bonnesen and Kunlun Hong\*, “Controlled synthesis of ortho, para-alternating linked polyarenes via catalyst-transfer Suzuki coupling polymerization” *Polym. Chem.* **2018**, *9*, 3342-3346. (**Inside front cover paper**)
20. **Hong-Hai Zhang\***, Wei Shen, Long Lu\*, “Cycloadditions between methyl (Z)-2-bromo-4,4,4-trifluoro-2-butenolate and various tosylacetamide: Synthesis of trifluoromethylated pyroglutamates and 2-pyridones derivatives” *Tetrahedron Lett.* **2018**, *59*, 1042-1045
21. Mi Zhou\*, Jie Li, **Honghai Zhang**, Kunlun Hong\*, “Stimuli-responsive fiber-like micelles from the self-assembly of well-defined rod-coil block copolymer” *Eur. Polym. J.* **2018**, *103*, 304-311.
22. Cong You, Fang Xia, Yue Zhao, Yin Zhang, Yongjian Sheng, Yipei Wu, Xiao-Chun Hang\*, Fei Chen, Huili Ma, Kang Shen, Zhengyi Sun, Takahiro Ueba, Satoshi Kera, Cong Zhang, **Honghai Zhang**, Zhi-Kuan Chen\* and Wei Huang\*, “Probing triplet excited states and managing blue light emission of neutral tetradentate platinum(II) complexes” *J. Phys. Chem. Lett.* **2018**, *9*, 2285-2292.
23. Chuanxu Ma, Zhongcan Xiao, **Honghai Zhang**, Liangbo Liang, Jingsong Huang, Wenchang Lu, Bobby G. Sumpter, Kunlun Hong, J. Bernholc, An-Ping Li, “Controllable conversion of quasi-freestanding polymer chains to graphene nanoribbons” *Nature Commun.* **2017**, *8*, 14815.
24. **Hong-Hai Zhang\***, Chuanxu Ma, Peter V. Bonnesen, Jiahua Zhu, Bobby G. Sumpter, Jan-Michael Y. Carrillo, Panchao Yin, Yangyang Wang, An-Ping Li and Kunlun Hong, “Helical Poly(5-alkyl-2,3-thiophene)s: controlled synthesis and structure characterization” *Macromolecules*; **2016**, *49*, 4691-4698.
25. **Hong-Hai Zhang**, Wei Peng, Jie Dong and Qiao-Sheng Hu, “*t*-Bu<sub>3</sub>P-Coordinated 2-phenylaniline-based palladacycle complex/ArBr as robust initiators for controlled Pd(0)/*t*-Bu<sub>3</sub>P-catalyzed Suzuki cross-coupling polymerization of AB-type monomers” *ACS Macro. Lett.* **2016**, *5*, 656-660.
26. **Hong-Hai Zhang**, Chunhui Xing, Qiaosheng Hu and Kunlun Hong, “Controlled Pd(0)/*t*-Bu<sub>3</sub>P-Catalyzed Suzuki Cross-Coupling Polymerization of AB-Type Monomers with ArPd(*t*-Bu<sub>3</sub>P)X or

- $\text{Pd}_2(\text{dba})_3/t\text{-Bu}_3\text{P}/\text{ArX}$  as Initiator” *Macromolecules*, **2015**, *48*, 967-978.
27. **Hong-Hai Zhang**, Qiao-Sheng Hu and Kunlun Hong, “Accessing conjugated polymers with precisely controlled heterobifunctional chain ends via post-polymerization modification of the OTf group and controlled Pd(0)/*t*-Bu<sub>3</sub>P-catalyzed Suzuki cross-coupling polymerization” *Chem. Commun.* **2015**, *51*, 14869-14872.
  28. **Hong-Hai Zhang**, Peter V. Bonnesen and Kunlun Hong, “Palladium-catalyzed Br/D exchange of arenes: selective deuterium incorporation with versatile functional group tolerance and high efficiency” *Org. Chem. Front.* **2015**, *2*, 1071-1075.
  29. **Hong-Hai Zhang**, Jie Dong, Qiao-Sheng Hu, “*t*-Bu<sub>3</sub>P-Coordinated 2-Phenylaniline-Based Palladacycle Complexes as Precatalyst for Pd-Catalyzed Coupling Reactions of Aryl Halides with Polyfluoroarenes by a C–H Activation Strategy” *Eur. J. Org. Chem.* **2014**, *6*, 1327-1332.
  30. **Hong-Hai Zhang**, Chun-Hui Xing, Georges Bouobda Tsemo, Qiao-Sheng Hu, “*t*-Bu<sub>3</sub>P-Coordinated 2-Phenylaniline-Based Palladacycle Complex as Precatalyst for Suzuki Cross-Coupling Polymerization of Aryl Dibromides with Aryldiboronic Acids” *ACS Macro. Lett.* **2013**, *2*, 10-13.
  31. **Hong-Hai Zhang**, Chun-Hui Xing, Qiao-Sheng Hu, “Controlled Pd(0)/*t*-Bu<sub>3</sub>P-Catalyzed Suzuki Cross-Coupling Polymerization of AB-Type Monomers with PhPd(*t*-Bu<sub>3</sub>P)I or Pd<sub>2</sub>(dba)<sub>3</sub>/*t*-Bu<sub>3</sub>P/ArI as Initiator” *J. Am. Chem. Soc.* **2012**, *134*, 13156-13159.
  32. Le-Le Wen, **Hong-Hai Zhang**, Hao Lin, Qi-Long Shen, Long Lu, “A facile synthetic route to 2-trifluoromethyl-substituted polyfunctionalized chromenes and chromones” *J. Fluorine, Chem.* **2012**, *133*, 171-177.
  33. **Hong-Hai Zhang**; Qi-Long Shen; Long Lu “Highly Diastereoselective Synthesis of Optically Pure Trifluoromethyl-Substituted Imidazolidine, Oxazolidine and Thiazolidine” *Tetrahedron Lett.* **2011**, *52*, 349-351.

**Mentoring:** En-Ci Li, Yu-Xing Zhu, Lei Guo, Ding-Chuan Wu, Guang-Qi Hu, Jing-Wen Bai, Fei-Fei Sheng, Kai-Hui Liu.

#### Patents:

1. Li Enci; **Zhang Honghai**; Shui Xinfeng, Bai Jingwen, “Preparation of deuterated carbazole compounds for organic light emitting devices” Farming Zhuanli Shenqing (2021), CN112876406.
2. **Zhang Honghai**; Hu Guangqi; Li Enci, “Green preparation of deuterated polyhalo aromatic compound as organic intermediate for fluorescent probes” (2021), CN113149801.
3. Li Enci, Shui Xinfeng, Cao Chenhui, **Zhang Honghai**, “Preparation of per-deuterated benzene” (2021), CN114213205.

#### Reviewer:

Serve as reviewers for several Journals: Organic Letters; ACS Catalysis; The Journal of Organic Chemistry; Macromolecules; Chemical Communications; Tetrahedron Letters; Journal of Molecular Catalysis A: Chemical; Applied Organometallic Chemistry.

Serve as abstract reviewer for 28<sup>th</sup> North American Catalysis Society Meeting, 2023, Providence.

#### Funding:

1. Title: A Plug and Play DOE Approach for Emerging Threats: Taskforce 5.  
Funding Organization: Department of Energy, USA  
Date of award: 10/2023  
Role in funding: Primary Investigators

2. Title: Center for Structural Molecular Biology  
Funding Organization: Department of Energy, USA  
Date of award: 10/2022  
Role in funding: Primary Investigators

#### Presentation

1. Poster presentation at 12<sup>th</sup> International Isotope Society Symposium on the Synthesis and Applications of Isotopes and Isotopically Labelled Compounds at Princeton University, NJ, USA, June 7-11, 2015
2. Oral presentation at 14<sup>th</sup> International Isotope Society Symposium on the Synthesis and Applications of Isotopes and Isotopically Labelled Compounds at North Carolina State University, NC, USA, June 12-16, 2022
3. Poster presentation at ACS Spring 2023 Meeting at Indianapolis, In, USA, March 26-30, 2023
4. Poster presentation at 28<sup>th</sup> North American Meeting of the North American Catalysis Society at Providence, RI, USA, June 18-23, 2023