



首页 学部概况 机构设置 学部资讯 师资队伍 科学研究 党建工作 学生园地 人才培养 联系我们

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教育经历

博士（2006.9—2009.7）清华大学化学系，高分子化学与物理专业，获理学博士学位，导师张希教授；
（2008.6—2009.3）比利时Katholieke University Leuven合作研究，合作导师Wim Dehaen 和Mario Smet；
硕士（2003.9—2006.7）吉林大学化学系，高分子化学与物理专业，获理学硕士学位，导师张希教授
本科（1999.9月—2003.7）吉林大学化学系，化学专业，获理学士学位

工作经历

2012.4—至今苏州大学材料与化学化工学部高分子科学与工程系，教授
2009.10—2012.3 德国University Siegen，洪堡学者

研究兴趣

1. 利用超分子手段，调控有机共轭基团的发光，探索发光机理，并制备可用于生物成像或检测的探针材料。
2. 有机/钙钛矿太阳能电池。

荣誉

2012年——“江苏省创新团队引进人才”
2009-2011年——德国“洪堡学者”；
2008年——长兴化工奖；
2007年——陶氏化学奖；
2006年——吉林大学精英杯优秀论文一等奖；
2005年——吉林大学优秀研究生一等奖；
2005年——高分子科学年会优秀墙报奖；
2004年——吉林大学精英杯优秀论文二等奖。

近期论文

2017年

1. Zhu Xin, Z. K., Sun Bangjin, Fan Jian, Zhou Yi, Song Bo, Comprehensive Study of the Effect of DPE Additive on Photovoltaic Performance of 5,6-Difluoro-benzo[1,2,5]thiadiazole Based Donor-acceptor Copolymers. Acta Chim. Sinica 2017, 75 (5), 464-472.
2. Zhu, K.; Tang, D.; Zhang, K.; Wang, Z.; Ding, L.; Liu, Y.; Yuan, L.; Fan, J.; Song, B.; Zhou, Y.; Li, Y., A two-dimension-conjugated small molecule for efficient ternary organic solar cells. Org. Electron. 2017, 48, 179-187.
3. Zhou, S.; Xia, Y.; Liu, Y.; He, Q.; Song, B., Aggregation Induced Emission Fluorogens Light Cells via Microtubules: Accessing the Mechanisms of Intracellular Trafficking of Ionic Substances. Langmuir 2017, 33 (23), 5947-5956.
4. Zhao, Y.-h.; Zhang, K.-c.; Wang, Z.-w.; Huang, P.; Zhu, K.; Li, Z.-d.; Li, D.-h.; Yuan, L.-g.; Zhou, Y.; Song, B., Comprehensive Study of Sol-Gel versus Hydrolysis-Condensation Methods To Prepare ZnO Films: Electron Transport Layers in Perovskite Solar Cells. ACS Appl. Mater. Interfaces 2017, 9 (31), 26234-26241.
5. Zhang, Y.; Wang, S.; Liu, Y.; Jin, Y.; Xia, Y.; Song, B., Bilayers directly scrolling up to form nanotubes via self-assembly of an achiral small molecule. Nanoscale 2017, 9 (4), 1491-1495.
6. Zhang, K.; Yu, H.; Liu, X.; Dong, Q.; Wang, Z.; Wang, Y.; Chen, N.; Zhou, Y.; Song, B., Fullerenes and derivatives as electron transport materials in perovskite solar cells. Sci. China Chem. 2017, 60 (1), 144-150.
7. Liu, Y.; Tang, D.; Zhang, K.; Huang, P.; Wang, Z.; Zhu, K.; Li, Z.; Yuan, L.; Fan, J.; Zhou, Y.; Song, B., Tuning Surface Energy of Conjugated Polymers via Fluorine Substitution of Side Alkyl Chains: Influence on Phase Separation of Thin Films and Performance

of Polymer Solar Cells. *ACS Omega* 2017, 2 (6), 2489-2498.

8. Liu, X.; Huang, P.; Dong, Q.; Wang, Z.; Zhang, K.; Yu, H.; Lei, M.; Zhou, Y.; Song, B.; Li, Y., Enhancement of the efficiency and stability of planar p-i-n perovskite solar cells via incorporation of an amine-modified fullerene derivative as a cathode buffer layer. *Sci. China Chem.* 2017, 60 (1), 136-143.
9. Li, Z.; Liu, Y.; Zhang, K.-c.; Wang, Z.-W.; Huang, P.; Li, D.; Zhou, Y.; Song, B., Chemical modification of n-type material naphthalene diimide on ITO for efficient and stable inverted polymer solar cells. *Langmuir* 2017, 33 (35), 8679-8685.
10. Jiang, L.; Xiao, N.; Wang, B.; Grustan-Gutierrez, E.; Jing, X.; Babor, P.; Kolibal, M.; Lu, G.; Wu, T.; Wang, H.; Hui, F.; Shi, Y.; Song, B.; Xie, X.; Lanza, M., High-resolution characterization of hexagonal boron nitride coatings exposed to aqueous and air oxidative environments. *Nano Research* 2017, 1-10.
11. Huang, P.; Wang, Z.; Liu, Y.; Zhang, K.; Yuan, L.; Zhou, Y.; Song, B.; Li, Y., Water-Soluble 2D Transition Metal Dichalcogenides as the Hole-Transport Layer for Highly Efficient and Stable p-i-n Perovskite Solar Cells. *ACS Appl. Mater. Interfaces* 2017, 9 (30), 25323-25331.
12. Huang, P.; Liu, Y.; Zhang, K.; Yuan, L.; Li, D.; Hou, G.; Dong, B.; Zhou, Y.; Song, B.; Li, Y., Catechol derivatives as dopants in PEDOT:PSS to improve the performance of p-i-n perovskite solar cells. *J. Mater. Chem. A* 2017.
13. Chen, Q.; Li, Z.; Dong, B.; Zhou, Y.; Song, B., Zwitter-Ionic Polymer Applied as Electron Transportation Layer for Improving the Performance of Polymer Solar Cells. *Polymers* 2017, 9 (11), 566.
14. Cao, T.; Chen, N.; Liu, G.; Wan, Y.; Perea, J. D.; Xia, Y.; Wang, Z.; Song, B.; Li, N.; Li, X., Towards a full understanding of regioisomer effects of indene-C 60 bisadduct acceptors in bulk heterojunction polymer solar cells. *J. Mater. Chem. A* 2017, 5 (21), 10206-10219.

2016年

1. Zhou, Y.; Yong, Z.-J.; Zhang, K.-C.; Liu, B.-M.; Wang, Z.-W.; Hou, J.-S.; Fang, Y.-Z.; Zhou, Y.; Sun, H.-T.; Song, B., Ultrabroad Photoluminescence and Electroluminescence at New Wavelengths from Doped Organometal Halide Perovskites. *J. Phys. Chem. Lett.* 2016, 7 (14), 2735-2741.
2. Zhao, Y.; Rahim, N. A. A.; Xia, Y.; Fujiki, M.; Song, B.; Zhang, Z.; Zhang, W.; Zhu, X., Supramolecular Chirality in Achiral Polyfluorene: Chiral Gelation, Memory of Chirality, and Chiral Sensing Property. *Macromolecules* 2016, 49 (9), 3214-3221.
3. Yu, H.; Liu, X.; Xia, Y.; Dong, Q.; Zhang, K.; Wang, Z.; Zhou, Y.; Song, B.; Li, Y., Room-temperature mixed-solvent-vapor annealing for high performance perovskite solar cells. *J. Mater. Chem. A* 2016, 4 (1), 321-326.
4. Yang, J.; Zhang, X.; Zhao, Z.; Li, X.; Wang, X.; Chen, M.; Song, B.; Li, M.; Shen, Z., Regulatory roles of interferon-inducible protein 204 on differentiation and vasculogenic activity of endothelial progenitor cells. *Stem cell research & therapy* 2016, 7 (1), 111.
5. Wang, Z.; Dong, Q.; Xia, Y.; Yu, H.; Zhang, K.; Liu, X.; Guo, X.; Zhou, Y.; Zhang, M.; Song, B., Copolymers based on thiazolothiazole-dithienosilole as hole-transporting materials for high efficient perovskite solar cells. *Org. Electron.* 2016, 33, 142-149.
6. Tang, D.; Liu, Y.; Zhang, Z.; Shu, Q.; Wang, B.; Fan, J.; Song, B., Donor-acceptor polymers based on 5,6-difluoro-benzo[1,2,5]thiadiazole for high performance solar cells. *Org. Electron.* 2016, 33, 187-193.
7. Song, B.; Zhou, Y.; Schoenherr, H., Optimized Model Surfaces for Advanced Atomic Force Microscopy Studies of Surface Nanobubbles. *Langmuir* 2016, 32 (43), 11179-11187.
8. Song, B.; Chen, K.; Schmittel, M.; Schoenherr, H., AFM Study of Surface Nanobubbles on Binary Self-Assembled Monolayers on Ultraflat Gold with Identical Macroscopic Static Water Contact Angles and Different Terminal Functional Groups. *Langmuir* 2016, 32 (43), 11172-11178.
9. Liu, Y.; Aghdassi, N.; Wang, Q.; Duhm, S.; Zhou, Y.; Song, B., Solvent-resistant ITO work function tuning by an acridine derivative enables high performance inverted polymer solar cells. *Org. Electron.* 2016, 35, 6-11.
10. Liu, G.; Cao, T.; Xia, Y.; Song, B.; Zhou, Y.; Chen, N.; Li, Y., Dihydrobenzofuran-C-60 bisadducts as electron acceptors in polymer solar cells: Effect of alkyl substituents. *Synth. Met.* 2016, 215, 176-183.
11. Li, Y.; Liu, X.; Wu, F.-P.; Zhou, Y.; Jiang, Z.-Q.; Song, B.; Xia, Y.; Zhang, Z.-G.; Gao, F.; Ingnas, O.; Li, Y.; Liao, L.-S., Non-fullerene acceptor with low energy loss and high external quantum efficiency: towards high performance polymer solar cells. *J. Mater. Chem. A* 2016, 4 (16), 5890-5897.
12. Jin, Y.; Wang, S.; Zhang, Y.; Song, B., Highly selective fluorescent chemosensor based on benzothiazole for detection of Zn²⁺. *Sensors and Actuators B: Chemical* 2016, 225, 167-173.
13. Dong, Q.; Wang, Z.; Zhang, K.; Yu, H.; Huang, P.; Liu, X.; Zhou, Y.; Chen, N.; Song, B., Easily accessible polymer additives for tuning the crystal-growth of perovskite thin-films for highly efficient solar cells. *Nanoscale* 2016, 8 (10), 5552-5558.
14. Cao, T.; Wang, Z.; Xia, Y.; Song, B.; Zhou, Y.; Chen, N.; Li, Y., Facilitating Electron Transportation in Perovskite Solar Cells via Water-Soluble Fullerene Interlayers. *ACS Appl. Mater. Interfaces* 2016, 8 (28), 18284-18291.

2015年

1. Zhao, Y.; Xu, G. Y.; Guo, X.; Xia, Y. J.; Cui, C. H.; Zhang, M. J.; Song, B.; Li, Y. W.; Li, Y. F., Cooperative assembly of an active layer utilizing the synergistic effect of a functional fullerene triad as an acceptor for efficient P3HT-based PSCs. *J. Mater. Chem. A* 2015, 3 (35), 17991-18000.
2. Zhang, X.; Hsu, C.-H.; Ren, X.; Gu, Y.; Song, B.; Sun, H.-J.; Yang, S.; Chen, E.; Tu, Y.; Li, X.; Yang, X.; Li, Y.; Zhu, X., Supramolecular [60]Fullerene Liquid Crystals Formed By Self-Organized Two-Dimensional Crystals. *Angew. Chem. Int. Ed.* 2015, 54 (1), 114-117.
3. Yin, S.; Dong, L.; Xia, Y.; Dong, B.; He, X.; Chen, D.; Qiu, H.; Song, B., Controlled self-assembly of a pyrene-based bolaamphiphile by acetate ions: from nanodisks to nanofibers by fluorescence enhancement. *Soft Matter* 2015, 11 (22), 4424-4429.
4. Yan, L.; Song, Y.; Zhou, Y.; Song, B.; Li, Y., Effect of PEI cathode interlayer on work function and interface resistance of ITO electrode in the inverted polymer solar cells. *Org. Electron.* 2015, 17 (0), 94-101.
5. Xu, N.; Han, J.; Zhu, Z.; Song, B.; Lu, X.; Cai, Y., Directional supracolloidal self-assembly via dynamic covalent bonds and metal coordination. *Soft Matter* 2015, 11 (27), 5546-5553.
6. Xia, Y.; Dong, L.; Jin, Y.; Wang, S.; Yan, L.; Yin, S.; Zhou, S.; Song, B., Water-soluble nano-fluorogens fabricated by self-assembly of bolaamphiphiles bearing AIE moieties: towards application in cell imaging. *J. Mater. Chem. B* 2015, 3 (3), 491-497.
7. Wang, S.; Zhang, Y.; Xia, Y.; Song, B., Polymorphic transformation towards formation of nanotubes by self-assembly of an achiral molecule. *Nanoscale* 2015, 7 (42), 17848-17854.

8. Song, Y.; Yan, L.; Zhou, Y.; Song, B.; Li, Y., Lowering the Work Function of ITO by Covalent Surface Grafting of Aziridine: Application in Inverted Polymer Solar Cells. *Adv. Mater. Interfaces* 2015, 2 (1), 1400397.
9. Song, B.; Liu, B.; Jin, Y.; He, X.; Tang, D.; Wu, G.; Yin, S., Controlled self-assembly of helical nano-ribbons formed by achiral amphiphiles. *Nanoscale* 2015, 7 (3), 930-935.
10. Liu, X.; Yu, H.; Yan, L.; Dong, Q.; Wan, Q.; Zhou, Y.; Song, B.; Li, Y., Triple Cathode Buffer Layers Composed of PCBM, C-60, and LiF for High-Performance Planar Perovskite Solar Cells. *ACS Appl. Mater. Interfaces* 2015, 7 (11), 6230-6237.
11. Liu, X.; Lei, M.; Zhou, Y.; Song, B.; Li, Y., High performance planar p-i-n perovskite solar cells with crown-ether functionalized fullerene and LiF as double cathode buffer layers. *Appl. Phys. Lett.* 2015, 107 (6), 063901.
12. Liu, X.; Jiao, W.; Lei, M.; Zhou, Y.; Song, B.; Li, Y., Crown-ether functionalized fullerene as a solution-processable cathode buffer layer for high performance perovskite and polymer solar cells. *J. Mater. Chem. A* 2015, 3 (17), 9278-9284.
13. Liang, Y.; Hao, Y.; Liu, X.; Feng, L.; Chen, M.; Tang, Q.; Chen, N.; Tang, M.; Sun, B.; Zhou, Y.; Song, B., Efficiency enhancement from [60]fulleropyrrolidine-based polymer solar cells through N-substitution manipulation. *Carbon* 2015, 92 (0), 185-192.
14. Jin, Y.; Xia, Y.; Wang, S.; Yan, L.; Zhou, Y.; Fan, J.; Song, B., Concentration-dependent and light-responsive self-assembly of bolaamphiphiles bearing alpha-cyanostilbene based photochromophore. *Soft Matter* 2015, 11 (4), 798-805.

2012-2014年

1. Wang, S.; Zhang, N.; Ge, X.; Wan, Y.; Li, X.; Yan, L.; Xia, Y.; Song, B., Self-assembly of an azobenzene-containing polymer prepared by a multi-component reaction: supramolecular nanospheres with photo-induced deformation properties. *Soft Matter* 2014, 10 (27), 4833-4839.
2. Tan, Z. a.; Li, L.; Li, C.; Yan, L.; Wang, F.; Xu, J.; Yu, L.; Song, B.; Hou, J.; Li, Y., Trapping Light with a Nanostructured CeOx/Al Back Electrode for High-Performance Polymer Solar Cells. *Adv. Mater. Interfaces* 2014, 1 (8), 1400197.
3. Lei, H.; Wang, M.; Tang, Z.; Luan, Y.; Liu, W.; Song, B.; Chen, H., Control of Lysozyme Adsorption by pH on Surfaces Modified with Polyampholyte Brushes. *Langmuir* 2014, 30 (2), 501-508.
4. Huang, J.; Wang, S.; Wu, G.; Yan, L.; Dong, L.; Lai, X.; Yin, S.; Song, B., Mono-molecule-layer nano-ribbons formed by self-assembly of bolaamphiphiles. *Soft Matter* 2014, 10 (7), 1018-1023.
5. Yu, Y.; Heidel, B.; Parapugna, T. L.; Wenderhold-Reeb, S.; Song, B.; Schönherr, H.; Grininger, M.; Noll, G., The Flavoprotein Dodecin as a Redox Probe for Electron Transfer through DNA. *Angew. Chem. Int. Ed.* 2013, 52 (18), 4950-4953.
6. Wang, H. W.; Jiang, W. W.; Wang, Y. W.; Liu, X. L.; Yao, J. L.; Yuan, L.; Wu, Z. Q.; Li, D.; Song, B.; Chen, H., Catalase-like and Peroxidase-like Catalytic Activities of Silicon Nanowire Arrays. *Langmuir* 2013, 29 (1), 3-7.
7. Li, X.; Wang, M. M.; Wang, L.; Shi, X. J.; Ya, J. X.; Song, B.; Chen, H., Block Copolymer Modified Surfaces for Conjugation of Biomacromolecules with Control of Quantity and Activity. *Langmuir* 2013, 29 (4), 1122-1128.
8. Zhou, F.; Li, D.; Wu, Z. Q.; Song, B.; Yuan, L.; Chen, H., Enhancing Specific Binding of L929 Fibroblasts: Effects of Multi-Scale Topography of GRGDY Peptide Modified Surfaces. *Macromolecular Bioscience* 2012, 12 (10), 1391-1400.
9. Song, B.; Schönherr, H., Atomic Force Microscopy Measurements of Supramolecular Interactions. In *Supramol. Chem.*, John Wiley & Sons, Ltd: 2012.
10. Shi, X.; Wang, Y.; Li, D.; Yuan, L.; Zhou, F.; Wang, Y.; Song, B.; Wu, Z.; Chen, H.; Brash, J. L., Cell Adhesion on a PEOGMA-Modified Topographical Surface. *Langmuir* 2012, 28 (49), 17011-17018.
11. Liu, X.; Sun, K.; Wu, Z.; Lu, J.; Song, B.; Tong, W.; Shi, X.; Chen, H., Facile Synthesis of Thermally Stable Poly(N-vinylpyrrolidone)-Modified Gold Surfaces by Surface-Initiated Atom Transfer Radical Polymerization. *Langmuir* 2012, 28 (25), 9451-9459.
12. Fan, J.; Lal Saha, M.; Song, B.; Schönherr, H.; Schmittl, M., Preparation of a Poly-nanocage Dynamer: Correlating the Growth of Polymer Strands Using Constitutional Dynamic Chemistry and Heteroleptic Aggregation. *J. Am. Chem. Soc.* 2012, 134 (1), 150-153.

专著 :

1. Song, B.; Schönherr, H., Atomic Force Microscopy Measurements of Supramolecular Interactions. In *Supramol. Chem.*, John Wiley & Sons, Ltd: 2012.
2. Xia, YJ; Song, B, KPFM and its Use to Characterize the CPD in Different Materials. In *Conductive Atomic Force Microscopy*, John Wiley & Sons, Ltd: 2017.