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珠江三角洲水质安全与保护教育部重点实验室

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## 教育背景及工作经历

1996.03 - 1999.06 浙江大学化学系, 博士

1999.07 - 2000.11 中国宝洁(北京)技术中心, 研究开发部, 研究员

2000.11 - 2002.11 德国Mainz大学, 有机化学研究所, 博士后

2002.11 - 2009.12 美国Akron大学, 高分子科学系, 高级研究员(研究助理教授)

2009.12 - 2011.12 美国CNM高分子材料有限公司, 高级研究员

2011.1 - 2018.03 中南大学, 化学化工学院, 特聘教授

2018.03 至今 广州大学大湾区环境研究院, 教授

## 研究方向

超分子化学、金属有机高分子能源材料、高分子环保材料

## 科研项目

1. 国家自然科学基金面上项目: 多三联吡啶衍生物金属有机高分子的设计、合成和自组装及其光电转换性能, 主持。
2. 国家自然科学基金面上项目: 三联吡啶类金属-有机拓扑分子及全共轭高分子的设计与合成, 主持。
3. 新型高分子除氟材料NanoDF及处理工艺的开发, 湖南有色衡东氟化学有限公司, 主持。
4. 纳米材料-NanoDM处理冶炼厂含汞烟道气, 水口山有色金属有限责任公司, 主持。

5. 高分子DBA材料处理冶炼厂含汞烟道气（株治集团锌I系统烟气脱汞），株洲冶炼集团股份有限公司，主持。
6. 高分子DBA材料处理铅冶炼厂含汞烟道气（株治集团Kivcet炼铅烟气脱汞），株洲冶炼集团股份有限公司，主持。
7. NanoDM处理含重金属烟气材料和技术，湖南有色金属投资有限公司，主持。
8. 纳米材料-高分子DBA处理汞冶炼厂含汞烟道气，陕西汞锑科技有限公司，主持。
9. 金属有机高分子能源材料的研究，中南大学特聘教授基金，主持。
10. 铅锌冶炼行业汞污染减排与无害化管理项目，全球环境基金/环保部对外合作中心，参与（负责铅锌冶炼含汞烟气治理示范工程）。

## 发表论文、专著、专利及奖励

代表性论文：

1. Zhilong Jiang, Die Liu, Mingzhao Chen, Jun Wang, Yiming Li, Zhe Zhang, Tingzheng Xie, Feng Wang, Xiaopeng Li, George R. Newkome, and Pingshan Wang, Assembling Shape-persistent High-Order Sierpiński Triangular Fractals, *Iscience*, **2020**, DOI:10.1016/j.isci.2020.101064
2. Die Liu, Mingzhao Chen, Kaixiu Li, Zhengguang Li, Jian Huang, Jun Wang, Zhilong Jiang, Zhe Zhang, Tingzheng Xie, George R. Newkome, Pingshan Wang, A Giant Truncated Metallo-tetrahedron with Unexpected Supramolecular Aggregation Induced Emission Enhancement, *J. Am. Chem. Soc.*, **2020**, DOI: 10.1021/jacs.0c02366
3. Guotao Wang, Mingzhao Chen, Jun Wang, Zhiyuan Jiang, Die Liu, Dongyang Lou, He Zhao, Kaixiu Li, Suqing Li, Tun Wu, Zhilong Jiang, Xiaoyi Sun and Pingshan Wang, Reinforced Topological Nano-assemblies: 2D Hexagon-Fused Wheel to 3D Prismatic Metallo-lamellar Structure with Molecular Weight of 119K Daltons, *J. Am. Chem. Soc.*, **2020**, DOI: 10.1021/jacs.0c00754.
4. Kaixiu Li, Zhengguang Li, Die Liu, Mingzhao Chen, Shi-Cheng Wang, Yi-Tsu Chan, and Pingshan Wang\*, Tetraphenylethylene Metal–Organic Nanobelt and 2 Its Turn-on Fluorescence for Sulfide ( $S^{2-}$ ), *Inorganic Chemistry* **2020**, <https://dx.doi.org/10.1021/acs.inorgchem.0c00928>.

5. Zhiyuan Jiang, Xiaobo Xue, Tun Wu, Mingzhao Chen, Shi-Cheng Wang, Jun Wang\*, Jun Yan, Yi-Tsu Chan and Pingshan Wang, Precise Self-Assembly of Molecular Four- and Six-Pointed Stars, *Inorganic Chemistry* **2020**, 59, 875–879.
6. Yongchao Huang, Zhongjie Guo, Hong Liu, Shanqing Zhang, Pingshan Wang\*, Jun Lu\*, Yexiang Tong\*, Heterojunction Architecture of N-Doped WO<sub>3</sub> Nanobundles with Ce<sub>2</sub>S<sub>3</sub> Nanodots Hybridized on a Carbon Textile Enables a Highly Efficient Flexible Photocatalyst, *Adv. Funct. Mat.* **2019**, 29, <https://doi.org/10.1002/adfm.201903490>
7. Kaihang Ye, Kunshan Li, Yirui Lu, Zhongjie Guo, Nan Ni, Hong Liu, Yongchao Huang\*, Hongbing Ji\*, Pingshan Wang\*, An overview of advanced methods for the characterization of oxygen vacancies in materials, *Trends in Analytical Chemistry* **2019**, 116, 102–108. Mini-Review
8. Mingzhao Chen, Die Liu, Jian Huang, Yiming Li, Ming Wang, Kaixiu Li, Jun Wang, Zhilong Jiang, Xiaopeng Li, and **Pingshan Wang\***, Trefoiled Propeller-Shaped Spiral Terpyridyl Metal–Organic Architectures, *Inorg. Chem.* **2019**, 58, 11146–11154.
9. Jun Wang, Xiaobo Xue, Mingzhao Chen, Tun Wu, Shi-Cheng Wang, He Zhao, Zhiyuan Jiang, Jun Yan, Zhilong Jiang, Yi-Tsu Chan, and **Pingshan Wang\***, Geometrically Complementary Self-Assembly of a Hexarhomboïd Architecture from Two Ruthenium(II)–Organic Building Blocks *Inorg. Chem.*, **2019**, 58, 7662–7666.
10. Jian Huang, Die Liu, Shi-Cheng Wang, Mingzhao Chen, He Zhao, Kaixiu Li, Yi-Tsu Chan, and **Pingshan Wang\***, Molecular Lemniscates from Organic–Metal Terpyridine-Based SelfAssembly and Host–Guest Recognition, *Inorg. Chem.*, **2019**, 58, 5051–5057.
11. Qianqian Liu, Xiaoyu Yang, Meng Wang, Die Liu, Mingzhao Chen, Tun Wu, Zhiyuan Jiang and **Pingshan Wang\***, Structural Controlled Pure Metallo-triangular Assembly through Bisterpyridinyl Dibenzo[b,d]thiophene, Dibenzo[b,d]furan and Dibenzo[b,d]carbazole, *Tetrahedron*, **2019**, in press (DOI: 10.1016/j.tet.2019.03.008)
12. Qianqian Liu, Linlin Wu, Mingzhao Chen, Yuan Guo, Tingzheng Xie, and **Pingshan Wang\***, Aromatic TpyRu<sup>2+</sup>(L)<sub>2</sub>Cl derivatives as water oxidation catalysts, *Catalysis Communications*, **2019**, 122, 38–42.
13. Zhiyuan Jiang, Tun Wu, Shi-Cheng Wang, Mingzhao Chen, He Zhao, Yi-Tsu Chan and **Pingshan Wang\***, Metallaoctahedron Derived from the Self-Assembly of Tetranuclear Metal–Organic Ligands, *Inorg. Chem.*, **2019**, 58, 35–38.

14. Die Liu, Mingzhao Chen, Yiming Li, Yixian Shen, Jian Huang, Xiaoyu Yang, Zhilong Jiang, Xiaopeng Li, George R. Newkome, and **Pingshan Wang\***, Vertical Assembly of Giant Double- and Triple-Decker Spoked Wheel Supramolecular Structures, *Angew. Chem. Int. Ed.* **2018**, *57*, 14116–14120.(Front Cover and Hot Article)
15. Mingzhao Chen, Jun Wang, Shi-Cheng Wang, Zhilong Jiang, Die Liu, Qianqian Liu, He Zhao, Jun Yan, Yi-Tsu Chan and **Pingshan Wang\***, Truncated Sierpiński Triangular Assembly from a Molecular Mortise–Tenon Joint, *J. Am. Chem. Soc.*, **2018**, *140*(38), 12168–12174.(Cover)
16. Mingzhao Chen, Jun Wang, Die Liu, Zhilong Jiang, Qianqian Liu, Tun Wu, Haisheng Liu, Weidong Yu, Jun Yan and **Pingshan Wang\***, Highly Stable Spherical Metallo-capsule From a Branched Hexapodal Terpyridine and Its Self-Assembled Berry-type Nanostructure, *J. Am. Chem. Soc.* **2018**, *140*(7), 2555–2561.(Cover)
17. Die Liu, Haisheng Liu, Bo Song, Mingzhao Chen, Jian Huang, Jun Wang, Xiaoyu Yang, Wei Sun, Xiaopeng Li and **Pingshan Wang\***, Terpyridine-based metallo-organic cages and supramolecular gelation by coordination-driven self-assembly and host–guest interaction, *Dalton Trans.*, **2018**, *47*, 14227–14232.(Cover)
18. Zhilong Jiang, Yiming Li, Ming Wang, Bo Song, Jie Yuan, Die Liu, Mingzhao Chen, Yuan Guo, Xiaoyu Yang, Charles N. Moorefield, George R. Newkome, Xiaopeng Li and **Pingshan Wang\***, Self-assembly of a supramolecular hexagram and a supramolecular pentagram, *Nature Communications*, **2017**, DOI: 10.1038/ncomms15476.
19. Zhilong Jiang, Yiming Li, Ming Wang, Die Liu, Jie Yuan, Mingzhao Chen, George R Newkome, Wei Sun and Xiaopeng Li and **Pingshan Wang\***, Constructing High Generation of Sierpinski Triangles with Molecular Puzzling, *Angew. Chem. Int. Ed.*, **2017**, *56*, 11450 –11455.
20. Mingzhao Chen, Jun Wang, Sourav Chakraborty, Die Liu, Zhilong Jiang, Qianqian Liu, Jun Yan, Hong Zhong, George R. Newkome and **Pingshan Wang\***, Metallosupramolecular 3D Assembly of Dimetallic  $Zn_4[RuL_2]_2$  and Trimetallic  $Fe_2Zn_2[RuL_2]_2$ . *Chem. Commun.*, **2017**, *53*, 11087–11090.
21. Tun Wu, Jie Yuan, Bo Song, Mingzhao Chen, Xiaobo Xue, Qianqian Liu, Jun Wang, Yi-Tsu Chan and **Pingshan Wang\***, Stepwise self-assembly of a discrete molecular honeycomb using a multtopic metallo-organic ligand, *Chem. Commun.*, **2017**, *53*, 6732–6735.
22. Tun Wu, Yu-Sheng Chen, Mingzhao Chen, Qianqian Liu, Xiaobo Xue, Yixian Shen, Jun Wang, Han Huang, Yi-Tsu Chan and **Pingshan Wang\***, Metallo-Organic Ligand Designing Road for Constructing the First-Generation Dendritic Metallotriangle, *Inorg. Chem.*, **2017**, *56*, 4065.

23. Yiming Li, Zhilong Jiang, Ming Wang, Jie Yuan, Die Liu, Xiaoyu Yang, Mingzhao Chen, Xiaopeng Li and **Pingshan Wang\***, Giant, Hollow 2D Metallo-Architecture: Step-Wise Self-Assembly of Hexagonal Supramolecular Nut, *J. Am. Chem. Soc.*, **2016**, 138, 10041–10046.
24. Die Liu, Zhilong Jiang, Ming Wang, Xiaoyu Yang, Haisheng Liu, Mingzhao Chen, Charles N. Moorefield, George R. Newkome, Xiaopeng Li\* and **Pingshan Wang\***, 3D Helical and 2D Rhomboidal Supramolecules: Stepwise Self-Assembly and Dynamic Transformation of Terpyridine-Based Metallo-Architectures, *Chem. Commun.*, **2016**, 52, 9773-9776.
25. Die Liu, Xiaoyu Yang, Yiming Li and **Pingshan Wang\***, Metal-exchangeable Macrocycles: From Bismetallo-Ru<sub>2</sub>/Zn Triangle to Ru<sub>2</sub>/Fe Triangular Assembly, *Chem. Commun.*, **2016**, 52, 2513-2516.
26. Die Liu, Zhilong Jiang, Meng Wang, Xiaoyu Yang, Haisheng Liu, Tun Wu, **Pingshan Wang\***, Highly packed and stretched polyterpyridinyl Ru<sup>2+</sup> complexes and their photophysical and stability properties, *Inorganica Chimica Acta*, **2016**, 450, 293-298.
27. Yiming Li, Zhilong Jiang, Jie Yuan, Die Liu, Tun Wu, Charles N. Moorefield, George R. Newkome and **Pingshan Wang\***, Facile thermodynamic conversion of a linear metallocopolymer into a self-assembled hexameric metallomacrocycle, *Chem. Commun.*, **2015**, 51, 5766-5769.
28. Die Liu, Qianqian Liu, Yiming Li, Meng Wang, Xiaoyu Yang, Tun Wu, Charles Moorefield, **Pingshan Wang\*** and George R. Newkome\*, TpyRu<sup>2+</sup>-based bismetallocopolymer and its performance in catalytic water oxidation (Tpy = 4-(p-methoxyphenyl)-2,2':6',2''-terpyridine), *Dalton Trans.*, **2015**, 44, 11269-11273.
29. Tun Wu, Yuan Guo, Yiming Li, Mingzhao Chen, Die Liu and **Pingshan Wang\***, Terpyridinyl Dibenzo[b,d]furan and Dibenzo[b,d]thiophene based Tetrameric Metallomacrocycles, *RSC Adv.*, **2016**, 6, 5631-5635.
30. Jie Yuan, Zhilong Jiang, Die Liu, Yiming Li and **Pingshan Wang\***, Synthesis and photophysical properties of multi-Ru<sup>2+</sup> terpyridine complexes: from di-nuclear linear to star-shaped hexa-nuclear architectures, *Inorg. Chem. Front.*, **2016**, 3, 268-273.
31. Die Liu, Hongda Cao, Zhilong Jiang, Tun Wu, Xiaoyi Sun, **Pingshan Wang\***, Charles N. Moorefield, Liming Dai and George R. Newkome, Mono- and Bis-Terpyridine-Based Dimer and Metallo-Organic Polymers as Ionic Templates for Preparation of Multi-Metallic Au Nanocluster and Nanowires, *Journal of Nanoscience and Nanotechnology*, **2016**, 16(3), 2613-2622.

32. Zhilong Jiang, Jie Yuan, Yiming Li, Qianqian Liu, Die Liu, Tun Wu and **Pingshan Wang\***, Conjugated aromatic asymmetrical terpyridine analogues via step-wise photocyclization and their ruthenium complexes, *New J. Chem.*, **2015**, 39, 9067-9070.
33. Tun Wu, Yuan Guo, Jie Yuan, Zhilong Jiang, Die Liu and **Pingshan Wang\***, The exchangeable self-assembly behaviour of bis-pseudorotaxanes with metallo-bisviologens ( $\text{CH}_3\text{PyTpyFeTpyPyCH}_3^{4+}$ ) and crown ether, *RSC Adv.*, **2015**, 5, 1754-1758.
34. S. Song, Y. Xue, L. Feng\*, H. Elbatal, **P. Wang**, C. N. Moorefield, G. R. Newkome and L. Dai\*, Reversible Self-Assembly of Terpyridine-Functionalized Graphene Oxide for Energy Conversion, *Angew. Chem. Int. Ed.*, **2014**, 53(5), 1415–1419.
35. G. R. Newkome\*, **P. Wang**, C. N. Moorefield, T. J. Cho, P. P. Mohapatra, S. Li, S.-H. Hwang, O. Lukyanova, L. Echegoyen, J. A. Palagallo, V. Iancu, S.-W. Hla, "Nanoassembly of a Fractal Polymer: A Molecular "Sierpinski Hexagonal Gasket," *Science*, **2006**, 312 (23 June), 1782-1785. [Highlighted: *Chem. & Eng. News*, May 15, 2006].
36. **P. Wang**, C. N. Moorefield, G. R. Newkome, "Nanofabrication. Reversible, Self-Assembly of an Imbedded Hexameric Metallomacrocycles with a Macromolecular Superstructure," *Angew. Chem. Int. Ed.* **2005**, 44 (11), 1679-1683.
37. **P. Wang**, C. N. Moorefield, K. U. Jeong, S. Z. D. Cheng, G. R. Newkome, "Dendrimer-Metallomacrocycle Composites: Nanofiber Formation by Multi-Ion Pairing" *Adv. Mater.*, **2008**, 20(7), 1381-1385.
38. S.-H. Hwang, C. N. Moorefield, **P. Wang**, K.-U. Jeong, S. Z. D. Cheng, K. K. Kotta, G. R. Newkome, "Dendron-Tethered and Tempered CdS Quantum Dots on Single-Walled Carbon Nanotubes," *J. Am. Chem. Soc.* **2006**, 128 (23), 7505-7509. [Chosen as a "Heart Cut"].
39. Y-T Chan, S. Li, C. N. Moorefield, **P. Wang**, C. D. Shreiner and G. R. Newkome, "Self-Assembly, Disassembly, and Reassembly of Gold Nanorods Mediated by Bis (terpyridine)-Metal Connectivity", *Chemistry - A European Journal*, **2010**, 16(14), 4164-4168..
40. **P. Wang**, C. N. Moorefield, S. Li, S.-H. Hwang, C. D. Shreiner, G. R. Newkome, "Terpyridine-Cu<sup>II</sup>-mediated reversible nanocomposites of single-wall carbon nanotubes: towards metallo-nanoscale architectures," *Chem. Commun.* **2006**, (10), 1091-1093. [Highlighted by *Nature Mater.*, **2006**, (5), 165].
41. **P. Wang**, C. N. Moorefield, M. Panzer, G. R. Newkome, "Terpyridine copper<sup>II</sup>-polycarboxylic acid architectures: formation of dimeric, helical, and cyclic nanostructures and their included water molecule motifs," *Chem. Commun.* **2005**, (35), 4405 – 4407. [Chosen as a Top 10 paper].

42. **P. Wang**, C. N. Moorefield, M. Panzer, G. R. Newkome, "Helical and polymeric nanostructures assembled from benzene tri- and tetracarboxylic acids associated with terpyridine copper(II) complexes," *Chem. Commun.* **2005**, (4), 465-467. [Chosen as a "Top 10" paper].
43. **P. Wang**, C. N. Moorefield, G. R. Newkome, "Synthesis, X-ray Structure, and Self-Assembly of Functionalized Bis(2,2':6',2"-terpyridinyl)arenes," *Org. Lett.*, **2004**, 6 (8), 1197-2000. IF: 5.12
44. S.-H. Hwang, C. N. Moorefield, **P. Wang**, K.-U. Jeong, S. Z. D. Cheng, K. K. Kotta, G. R. Newkome, "Construction of CdS Quantum Dots via a Regioselective Dendritic Functionalized Cellulose Template," *Chem. Commun.*, **2006**, (33), 3495-3497. [Selected as a "Hot Paper"].
45. **P. Wang**, C. N. Moorefield, M. Panzer, G. R. Newkome, "TerpyridineCu<sup>II</sup> Polycarboxylate Crystal Reorganization to One- and Two-Dimensional Nanostructures: Crystal Disassembly and Reassembly," *Crystal Growth & Design*, **2006**, 6 (7), 1563-1565. [Selected as a "Hot Articles", and chosen as "Top 1 online access in 2006"].

Book Chapter:

46. T.-J. Cho, C. N. Moorefield, **P. Wang**, G. R. Newkome, "Metallocendrimers: Fractals and Photonics," in ACS Symposium Series: Metal-Containing and Metallo-Supramolecular Polymers and Materials, 2006, 921, 186-204.

专利:

1. 一种金属多孔三维网络结构聚合物催化材料及其制备方法, 专利号: 201510236800.8, 2015-5-11, 中南大学: 王平山; 王萌; 刘倩倩
2. 一种金属多孔三维网络结构聚合物催化材料的应用, 专利号: 201510236006.3, 2015-5-11, 中南大学: 王平山; 林一帆; 刘倩倩
3. 三联吡啶-铁线型高分子配合物/金纳米线复合材料及其制备方法和应用, 专利号: 201410192383.7, 2014-05-08, 中南大学: 王平山; 刘叠; 曹宏达; 王萌
4. 一种联苯短链线型聚合物及其制备方法, 专利号: 201410192385.6, 2014-06-09, 中南大学: 王平山; 伍瞰; 郭愿
5. G. R. Newkome, C. N. Moorefield, **P. Wang**, "Terpyridine-CuII-mediated Reversible Self-assembly of Single-Wall Carbon Nanotubes: Towards Ordered Nanoscale Architectures," PCT Int. Appl. (2006), WO 2006106491 A2.
6. G. R. Newkome, C. N. Moorefield, **P. Wang**, "Nanofabrication Reversible, Self-Assembly of an Imbedded Hexameric Metallomacrocycles with a Macromolecular Superstructure," PCT Int. Appl. (2006), WO 2006056953 A2.

7. J.-F. Dozol, C. Schmidt, P. Wang, V. B&ouml;hmer, "Phosphorylated dendrimers, their preparation process, and their use for the extraction of actinides and lanthanides," U.S. Pat., 2006, US 2006/0205920 A1.

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