

## 报告题目：仿生设计与功能化

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构筑多维多样化的仿生功能组装体，实现对仿生组装体结构的调控与功能化，是当前重要研究课题之一。本课题组以自组装为手段，发展了多层次多维仿生组装新技术和新方法，构筑了多样化的仿生组装体。例如，以蛋白质组装为平台，我们构筑了多样化的蛋白质组装体，并赋予组装体多酶催化的功能。本次交流将在仿酶、仿光捕获系统、仿离子通道，以及靶向药物材料设计与制备等方面进行深入交流。

### 刘俊秋简历



刘俊秋，男，教授，博士生导师。国家基金委杰出青年基金获得者，教育部长江学者特聘教授。1987年毕业于吉林大学化学系，1999年在吉林大学化学系高分子专业分别获理学硕士和博士学位。2002-2003年获洪堡基金资助在德国从事博士后研究。主要研究方向为仿生化学、蛋白质组装、纳米生物材料等研究。近年来在*Chem. Review*, *Chem. Soc. Review*, *Acc.Chem.Res.*, *J. Am. Chem. Soc.*, *Angew. Chem. Int. Ed*等杂志已发表SCI研究论文150余篇。获得吉林省科技进步一等奖1项，获得吉林省自然科学学术成果一等奖1项。任*Molecules*, *Polymer Science*, *Open Journal of Polymer Chemistry*和 *Journal of Polymer Science & Research Updates*等杂志顾问编委。

### Selected Publications:

1. Chao Lang, Xiaoli Deng, Feihu Yang, Bing Yang, Wei Wang, Shuaiwei Qi, Xin Zhang, Chenyang Zhang, Zeyuan Dong\* Junqiu Liu\*. Highly Selective Artificial Potassium Ion Channels Constructed from Pore-Containing Helical Oligomers. *Angew. Chem. Int. Ed.* 2017, 56, 12668-12671.

2. Quan Luo, Chunxi Hou, Yushi Bai, Ruibing Wang, and Junqiu Liu\*, Protein Assembly: Versatile Approaches to Construct Highly Ordered Nanostructures. **Chem. Rev.** 2016, 116, 13571-13632.
3. H.C.Sun, X.Y.Zhang, L.Miao, L.L.Zhao, Q.Luo, J.Y. Xu, J.Q.Liu. Micelle-Induced Self-Assembling Protein Nanowires: Versatile Supramolecular Scaffolds for Designing the Light-Harvesting System. **ACS Nano** 2016, 10, 421-428.
4. Chao Lang, Wenfang Li, Zeyuan Dong,\* Xin Zhang, Feihu Yang, Bing Yang, Xiaoli Deng, Chenyang Zhang, Jiayun Xu, and Junqiu Liu\*. Biomimetic Transmembrane Channels with High Stability and Transporting Efficiency from Helically Folded Macromolecules. **Angew. Chem. Int. Ed.** 2016, 128, 9875-987.
5. Hongcheng Sun, Xiyu Zhang, Lu Miao, Linlu Zhao, Quan Luo, Jiayun Xu and Junqiu Liu\*. Micelle-Induced Self-Assembling Protein Nanowires: Versatile Supramolecular Scaffolds for Designing the Light-Harvesting System. **ACS Nano** 2015, 9, 5461-5469.
6. Junyan Zhu, Zeyuan Dong,\* Shengbin Lei, Lili Cao, Bing Yang, Wenfang Li, Yuanchao Zhang, Junqiu Liu,\* Jiacong She. Design of Aromatic Helical Polymers for STM Visualization: Imaging of Single and Double Helices with a Pattern of pi-pi Stacking. **Angew. Chem. Int. Ed.** 2015, 54, 3097-3101.
7. Chunqiu Zhang, Tiezheng Pan, Christian Salessé, Dongmei Zhang, Lu Miao, Liang Wang, Yuzhou Gao, Jiayun Xu, Zeyuan Dong, Quan Luo,\* Junqiu Liu\* Reversible Ca<sup>2+</sup> switch of an engineered allosteric antioxidant selenoenzyme. **Angew. Chem. Int. Ed.** 2014, 53, 13536-13539.
8. Yuzhou Gao, Quan Luo, Shanpeng Qiao, Liang Wang, Zeyuan Dong, Jiayun Xu, Junqiu Liu\*. Enzymatically Regulating the Self-Healing of Protein Hydrogels with High Healing Efficiency. **Angew. Chem. Int. Ed.** 2014, 53, 9343-9346.
9. Yushi Bai, Quan Luo, Wei Zhang, Lu Miao, Jiayun Xu, Hongbin Li, Junqiu Liu\*. Highly Ordered Protein Nanorings Designed by Accurate Control of Glutathione S-Transferase Self-Assembly. **J. Am. Chem. Soc.** 2013, 135, 10966-10969.