

所属学院 化学与分子工程学院

学科领域 分析化学

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个人简介

针对界面电荷传输信息的精准高效获取和实时动态分析的难题，通过构筑单颗粒碰撞电化学体系、建立高分辨单颗粒瞬态电化学方法、开发特征信号大数据处理方法，从微纳尺度原位、动态和精准获取界面电荷传输的准确信息，实现了界面电荷传输与转移过程的实时调控，揭示了功能化复杂界面上电荷传输机制。2011年以来相关研究工作共发表SCI论文40余篇，其中近5年以第一或通讯作者已在Nature Protoc.、Nature Commun.、JACS、Angew. Chem. Int. Ed.、Nano Lett. 和 Chem. Sci. 等国际高水平期刊发表SCI论文30余篇。获授权国家发明专利5项。主持重大研究计划培育项目、国家自然科学基金面上项目以及青年科学基金项目等10余项。获上海市优秀博士学位论文、2016年上海市自然科学一等奖、2017年中国分析测试协会科学技术奖特等奖、2018年华东理工大学青年英才计划、2019年华东理工大学优秀青年女教师、2019年上海市浦江人才计划等奖励。现兼任国际学术期刊BMC Chemistry 副主编、Frontier in Chemistry 客座编辑、Science Journal of Chemistry 期刊编委。

研究方向

纳米电化学、即时超灵敏检测

研究成果及主要发表文章

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2. Wei Ma, Hui Ma, Yue-Yi Peng, He Tian*; Yi-Tao Long*, An ultrasensitive photoelectrochemical platform for quantifying photoinduced electron transfer properties of a single entity, Nature Protoc. 2019, 14, 2672-290.
3. Mahmoud Elsayed Hafez, Hui Ma, Wei Ma*, Yi-Tao Long*, Unveiling the intrinsic catalytic activities of single gold nanoparticle-based enzyme, Angew. Chem. Int. Ed. 2019, 131, 6393-6398.
4. Yue-Yi Peng#, Hui Ma#, Wei Ma*, Yi-Tao Long, He Tian*, Single nanoparticle photoelectrochemistry at a nanoparticulate TiO₂-filmed ultramicroelectrode, Angew. Chem. Int. Ed. 2018, 57, 3758-3762.
5. Hui Ma#, Wei Ma#, Jian-Fu Chen, Xiao-Yuan Liu, Yue-Yi Peng, Zhe-Yao Yan, He Tian*, Yi-Tao Long*. Quantifying Visible-Light-Induced Electron Transfer Properties of Single Dye-Sensitized ZnO Entity for Water Splitting. J. Am. Chem. Soc. 2018, 140, 5272-5279.
6. Wei Ma, Keke Hu, QianJin Chen, Min Zhou, Michael V. Mirkin, Allen J. Bard*, Electrochemical size measurement and characterization of electrodeposited platinum nanoparticles at nanometer resolution with scanning electrochemical microscopy. Nano Lett. 2017, 17, 4354-4358.
7. Wei Ma#, Hui Ma#, Jian-Fu Chen#, Yue-Yi Peng, Zhe-Yao Yan, Hai-Feng, Wang, Yi-Lun Ying, He Tian*, Yi-Tao Long*, Tracking motion trajectories of individual nanoparticles using time-resolved current traces. Chem. Sci. 2017, 8, 1854-1861.
8. Wei Ma, Yi-Tao Long*, Quinone/hydroquinone functionalised biointerfaces for biological applications from macro- to nano-scale, Chem. Soc. Rev. 2014, 43, 30-41.
9. Wei Ma, Yi-Lun Ying, Li-Xia Qin, Zhen Gu, Hao Zhou, Da-Wei Li, Todd C. Sutherland, Hong-Yuan Chen & Yi-Tao Long*, Investigating electron-transfer processes using a biomimetic hybrid bilayer membrane system, Nature Protoc. 2013, 8, 439-450.
10. Wei Ma, Da-Wei Li, Todd C. Sutherland, Yang Li, Yi-Tao Long*, Hong-Yuan Chen, Reversible redox of NADH and NAD⁺ at a hybrid lipid bilayer membrane using ubiquinone, J. Am. Chem. Soc. 2011, 133, 12366-12369.