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个人简介

现任东南大学生物科学与医学工程学院研究员，曾在亚利桑那州立大学和德克萨斯农工大学从事博士后研究。研究方向涵盖分析化学、荧光成像与拉曼光谱。迄今已在 Nature Communications、Journal of the American Chemical Society、Angewandte Chemie International Edition、Analytical Chemistry、Biomaterials 等国际学术期刊发表三十余篇论文。

谷歌学术主页：<https://scholar.google.com/citations?user=8-huZkoAAAAJ&hl=zh-CN>

研究兴趣与领域

- 分析化学
- 荧光成像
- 拉曼光谱
- 表面等离子体共振
- 药物递送
- 纳米材料
- 介孔材料
- 稀土纳米晶体

工作经历

- 10/2021 - 今 东南大学 – 中国
研究员
- 数字医学工程全国重点实验室，生物科学与医学工程学院
- 03/2020 - 06/2021 亚利桑那州立大学 – 美国
博士后
- 生物设计研究院
 - 合作导师：陶农建、王少鹏
- 11/2017 - 03/2020 德州农工大学 – 美国
博士后
- 生物化学与生物物理系
 - 合作导师：Dmitry Kurouski

教育经历

- 09/2012 - 06/2017 复旦大学 中国
博士学位：无机化学
- 导师：张凡

09/2008 - 06/2012 华东理工大学 中国
学士学位：化学工程与工艺

学术活动

2021-2023, 客座编辑, Biosensors (SCI, IF = 5.6)

获奖与荣誉

2025, 江苏省青年科技人才托举工程

代表性论文

1. **Rui Wang**, Lei Zhou, Gaolin Liang*, et al. Spatially Quantitative Imaging of Enzyme Activity in a Living Cell. *J. Am. Chem. Soc.* 2024, 146, 34870-34877.
2. Yueyan Yang, **Rui Wang***, Wenying Zhong*, Lei Zhou*, et al. Quantitative Near-Infrared Photoacoustic Imaging of Gamma-Glutamyl Transpeptidase Activity in Tumors. *Anal. Chem.* 2025, 97, 12540-12547
3. Yu Deng, Gaolin Liang*, **Rui Wang***, et al. “Turn-on” NIR-II fluorescence of a dually quenched probe for sensitive imaging of cathepsin B in vivo. *Chem. Commun.* 2025, 61, 544-547.
4. Liangxi Zhu, Gaolin Liang*, **Rui Wang***, et al. Acid and phosphatase-triggered release and trapping of a prodrug on cancer cell enhance its chemotherapy. *Biomaterials* 2025, 320, 123254.
5. Zhe He, **Rui Wang***, Dmitry Kurouski*, et al. Imaging spatial plasmon mode of nanocavity formed by Au tip and Au nanorod lattice in tip-enhanced Raman spectroscopy. *J. Appl. Phys.* 2024, 135, 193110.
6. Xinyi Hu, **Rui Wang***, Gaolin Liang*, et al. Enhanced Photoacoustic Imaging of Urokinase-Type Plasminogen Activator Activity in Tumors. *Anal. Chem.* 2023, 95, 14511-14515.
7. Yu Deng, **Rui Wang***, Gaolin Liang*, et al. A chemiluminescent probe for imaging peroxynitrite in inflammatory cells and tissues. *Anal. Chem.* 2023, 95, 6496-6500.
8. Xiang Shi, **Rui Wang***, Gaolin Liang*, et al. Highly lipophilic coumarin fluorophore with excimer-monomer transition property for lipid droplet imaging. *Chin. Chem. Lett.* 2023, 34, 107613.
9. **Rui Wang**, Zhe He, Dmitry Kurouski* Near-field and photocatalytic properties of mono-and bimetallic nanostructures monitored by nanocavity surface-enhanced Raman scattering. *Nano Res.* 2023, 16, 1545-1551.
10. **Rui Wang**, Jiapei Jiang, Pengfei Zhang*, Shaopeng Wang*, et al. Rapid Regulation of Local Temperature and Transient Receptor Potential Vanilloid 1 Ion Channels with Wide-Field Plasmonic Thermal Microscopy. *Anal. Chem.* 2022, 94, 14503-14508. (Cover Article)

11. **Rui Wang**, Zhe He, Dmitry Kurouski*, et al. Gap-mode tip-enhanced Raman scattering on Au nanoplates of varied thickness. *J. Phys. Chem. Lett.* 2020, 11, 3815-3820.
12. Zhandong Li#, **Rui Wang**#, Dmitry Kurouski* Nanoscale photocatalytic activity of gold and gold–palladium nanostructures revealed by tip-enhanced raman spectroscopy. *J. Phys. Chem. Lett.* 2020, 11, 5531-5537.
13. **Rui Wang**, Jingbai Li, Dmitry Kurouski*, et al. Direct experimental evidence of hot carrier-driven chemical processes in tip-enhanced Raman spectroscopy (TERS). *J. Phys. Chem. C* 2020, 124, 2238-2244.
14. **Rui Wang**, Dmitry Kurouski*, et al. Use of Raman spectroscopy and size-exclusion chromatography coupled with HDX-MS spectroscopy for studying conformational changes of small proteins in solution. *J. Pharm. Biomed. Anal.* 2020, 189, 113399.
15. Mengyao Zhao#, **Rui Wang**#, Fan Zhang*, et al. Precise in vivo inflammation imaging using in situ responsive cross-linking of glutathione-modified ultra-small NIR-II lanthanide nanoparticles. *Angew. Chem. Int. Ed.* 2019, 131, 2072-2076.
16. **Rui Wang**, Dmitry Kurouski* Thermal reshaping of gold microplates: three possible routes and their transformation mechanisms. *ACS Appl. Mater. Interfaces* 2019, 11, 41813-41820.
17. **Rui Wang**, Dmitry Kurouski* Elucidation of tip-broadening effect in tip-enhanced Raman spectroscopy (TERS): A cause of artifacts or potential for 3D TERS. *J. Phys. Chem. C* 2018, 122, 24334-24340.
18. **Rui Wang**, Lei Zhou, Fan Zhang*, et al. In vivo gastrointestinal drug-release monitoring through second near-infrared window fluorescent bioimaging with orally delivered microcarriers. *Nat. Commun.* 2017, 8, 14702.
19. **Rui Wang**, Xiaomin Li, Fan Zhang*, et al. Epitaxial Seeded Growth of Rare-Earth Nanocrystals with Efficient 800 nm Near-Infrared to 1525 nm Short-Wavelength Infrared Downconversion Photoluminescence for In Vivo Bioimaging. *Angew. Chem. Int. Ed.* 2014, 53, 12086-12090. (Cover Article)
20. **Rui Wang**, Fan Zhang* NIR luminescent nanomaterials for biomedical imaging. *J. Mater. Chem. B* 2014, 2, 2422 -2443.
21. Xiaomin Li#, **Rui Wang**#, Fan Zhang*, Dongyuan Zhao*, et al. Nd³⁺Sensitized Up/Down Converting Dual-Mode Nanomaterials for Efficient In-vitro and In-vivo Bioimaging Excited at 800 nm. *Sci. Rep.* 2014, 3, 3536.
22. **Rui Wang**, Fan Zhang* Near-infrared Nanomaterials. Royal Society of Chemistry 2016. (Chapter 1)
23. **Rui Wang**, Fan Zhang*, et al. Photon Upconversion Nanomaterials, Springer 2015. (Chapter 1, 6, 11)

24. Lei Zhou, **Rui Wang**, Dongyuan Zhao, Fan Zhang*, et al. Single-band upconversion nanoprobe for multiplexed simultaneous in situ molecular mapping of cancer biomarkers. *Nat. Commun.* 2015, 6, 6938.
25. Xiaomin Li, **Rui Wang**, Fan Zhang*, and Dongyuan Zhao* Engineering homogeneous doping in single nanoparticle to enhance upconversion efficiency. *Nano Lett.* 2014, 14, 3634-3639.
26. Isaac Esparza, **Rui Wang**, Dmitry Kurouski* Surface-enhanced Raman analysis of underlying colorants on dyed hair. *Anal. Chem.* 2019, 91, 7313-7318.
27. Charles Farber, **Rui Wang**, Robert Chmielewski, John Mullet, Dmitry Kurouski* Nanoscale structural organization of plant epicuticular wax probed by atomic force microscope infrared spectroscopy. *Anal. Chem.* 2019, 91, 2472-2479.
28. Lei Zhou, Yong Fan, **Rui Wang**, Xiaomin Li, Lingling Fan, Fan Zhang* High-capacity upconversion wavelength and lifetime binary encoding for multiplexed biodetection. *Angew. Chem. Int. Ed.* 2018, 57, 12824-12829.
29. Yong Fan, Peiyuan Wang, Yiqing Lu*, **Rui Wang**, Lei Zhou, Xianlin Zheng, Xiaomin Li, James A. Piper, Fan Zhang*, et al. Lifetime-engineered NIR-II nanoparticles unlock multiplexed in vivo imaging. *Nat. Nanotechnol.* 2018, 13, 941-946.