

2026 年度中国分析测试协会分析测试科学奖 公示材料

一、项目名称

纳米酶仿生催化及其环境分析应用基础研究

二、申报奖种及等级

中国分析测试协会分析测试科学奖，二等奖

三、主要完成人和完成单位

主要完成人：谷成成（青岛农业大学）、朱党强（青岛农业大学）、刘晓娟（青岛农业大学）、常加富（青岛农业大学）、盖盼盼（青岛农业大学）、李峰（青岛农业大学）

完成单位：青岛农业大学

四、代表性论文专著目录

1. Chengcheng Gu[#], Lei Zhang[#], Ting Hou, Dangqiang Zhu, Feng Li*, Panpan Gai*, Unveiling the Glucose Oxidase-Like and Catalase-Like Activities of Highly Conjugated 3,4,9,10-Perylenetetracarboxylic Dianhydride for Boosting Biofuel Cells, *Advanced Functional Materials*, 2024, 34, 2400617.
2. Chengcheng Gu, Lei Zhang, Ting Hou, Qianqian Wang, Feng Li*, Panpan Gai*, Laser-Induced Nanozyme Biofuel Cell-Based Self-Powered Patch for Accelerating Diabetic Wound Healing with Real-Time Monitoring, *Advanced Functional Materials*, 2025, 35, 2423106.
3. Chengcheng Gu, Jianlin Liu, Ting Hou, Wenchao Zheng, Panpan Gai*, Feng Li, Portable Self-Powered/Colorimetric Dual-Mode Sensing Platform

Based on Multifunctional Bioconjugates for Precise On-Site Detection of Acetamiprid, *Analytical Chemistry*, 2025, 97, 928.

4. Chengcheng Gu, Dejie Ma, Liuhan Zhang, Hongbin Chen, Lei Ge, Feng Li*, Dangqiang Zhu*, Identifying the Oxidase-like Behavior of N-Doped Carbon Nanozymes via Post-Synthetic Modification Method for Colorimetric Sensing, *Analytical Chemistry*, 2025, 97, 19759.

5. Lei Yu, Yifei Wang, Rong Li, Ting Hou, Chengcheng Gu, Panpan Gai*, Feng Li*, Jiafu Chang*, Lysine-Engineered Seawater-Tolerant Nanozyme for Sustainable Inactivation of Drug-Resistant Bacteria in Marine Environments, *Analytical Chemistry*, 2026, 98, 9954.

6. Hongbin Chen[#], Chengcheng Gu[#], Wenjin Liu, Jianmeng Zhao, Baizheng Wang, Haojun Zhang, Xiaojuan Liu*, Feng Li*, Panpan Gai*, Wearable Plant Electronics Enables Early Detection of Salt Stress by Tracking K⁺/Na⁺ Homeostasis and Salicylic Acid Accumulation, *Analytical Chemistry*, 2026, 98, 15094.

7. Xiaojuan Liu[#], Jiahui Zhao[#], Qinxing Sun, Lei Ge, Feng Li*, Linglin Fu*, Panpan Gai*, Laser-Printed Electrochemical Microfluidic Aptasensing Chip for Simultaneous Detection of Multiple Pesticides, *Analytical Chemistry*, 2026, 98, 6661.

8. Panpan Gai, Li Pu, Cui Wang, Dangqiang Zhu*, Feng Li*, CeO₂@NC nanozyme with robust dephosphorylation ability of phosphotriester: A simple colorimetric assay for rapid and selective detection of paraoxon, *Biosensors*

and Bioelectronics, 2023, 220, 114841.

9. Mengli Zhang[#], Yongqi Wang[#], Na Li, Dangqiang Zhu*, Feng Li*, Specific detection of fungicide thiophanate-methyl: A smartphone colorimetric sensor based on target-regulated oxidase-like activity of copper-doped carbon nanozyme, *Biosensors and Bioelectronics*, 2023, 237, 115554.

10. Dangqiang Zhu, Na Li, Mengli Zhang, Yuqing Wang, Feng Li*, Ting Hou*, Hydrolysis enabled specific colorimetric assay of carbosulfan with sensitivity manipulation via metal-doped or metal-free carbon nanozyme, *Biosensors and Bioelectronics*, 2024, 243, 115786.

五、专利目录

1. 谷成成, 张磊, 盖盼盼, 李峰, 3,4,9,10-花四羧酸二酐共轭分子纳米酶、工作电极及生物燃料电池, ZL 2023 1 1688376.1, 国家发明专利, 2025.12.26

2. 朱党强, 盖盼盼, 李娜, 李峰, 一种 Cu(I)-N-C 纳米酶、制备方法及其在甲基硫菌灵检测中的应用, ZL 2023 1 0042117.5, 国家发明专利, 2024.08.05

3. 刘晓娟, 向军竹, 王钰莹, 李峰, 铁掺杂激光诱导石墨烯传感器、其制备方法及应用, ZL 2023 1 0505710.9, 国家发明专利, 2025.09.19