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Department of Materials Science and Engineering, Faculty of Innovation Engineering
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Academic Qualification

Ph.D. in Applied Chemistry, Soochow University
M.S. in Inorganic Chemistry, Anhui Normal University
B.S. in Applied Chemistry, Anhui Polytechnic University

Teaching Area

Materials Science

Research Area

Functional nanomaterials synthesis and innovative cancer therapy
Bioactive materials design and ion biological effects
Tumor microenvironment regulation and synergistic cancer therapy
Bioapplication of novel antibacterial and anti-inflammatory nanomaterials

Working Experience

Professor, Macau University of Science and Technology, Macau, China, 2023-present
Visiting Scholar, University of Wisconsin-Madison, 2015-2016
Professor / Principal Investigator, Soochow University, 2017-present
Associate professor, Soochow University, 2014-2017
Lecturer, Soochow University, 2012-2014

Academic Publication (selected)

1. Pei, Z. F.; Lei, H. L.; **Cheng, L.***, Bioactive inorganic nanomaterials for cancer theranostics. *Chemical Society Reviews* 2023, 52 (6), 2031-2081.
2. Lei, H. L.; Li, Q. G.; Li, G. Q.; Wang, T. Y.; Lv, X. J.; Pei, Z. F.; Gao, X.; Yang, N. L.; Gong, F.; Yang, Y. Q.; Hou, G. H.; Chen, M. J.; Ji, J. S.*; Liu, Z.*; **Cheng, L.***, Manganese molybdate nanodots with dual amplification of STING activation for "cycle" treatment of metalloimmunotherapy. *Bioactive Materials* 2024, 31, 53-62.
3. Wang, Y. J.; Gong, F.*; Han, Z. H.; Lei, H. L.; Zhou, Y. K.; Cheng, S. N.; Yang, X. Y.; Wang, T. Y.; Wang, L.; Yang, N. L.; Liu, Z.; **Cheng, L.***, Oxygen-Deficient Molybdenum Oxide Nanosensitizers for Ultrasound-Enhanced Cancer Metalloimmunotherapy. *Angewandte Chemie-International Edition* 2023, 62, e202215467
4. Wang, L.; Zhang, B. R.; Yang, X. T.; Guo, S. T.; Waterhouse, G. I. N.; Song, G. R.; Guan, S. Y.*; Liu, A. H.*; **Cheng, L.***; Zhou, S. Y., Targeted alleviation of ischemic stroke reperfusion via atorvastatin-ferritin Gd-layered double hydroxide. *Bioactive Materials* 2023, 20, 126-136.
5. Wang, L.; Mao, Z.; Wu, J.; Cui, X. L.; Wang, Y. J.; Yang, N. L.; Ge, J.; Lei, H. L.; Han, Z. H.; Tang, W.; Guan, S. Y.; **Cheng, L.***, Engineering layered double hydroxide-based sonocatalysts for enhanced sonodynamic-immunotherapy. *Nano Today* 2023, 49.
6. Cheng, S. N.; Chen, L.; Gong, F.; Yang, X. Y.; Han, Z. H.; Wang, Y. J.; Ge, J.; Gao, X.; Li, Y. T.; Zhong, X. Y.; Wang, L.; Lei, H. L.; Zhou, X. Z.; Zhang, Z. L.*; **Cheng, L.***, PtCu Nanosensitizers with Inflammatory Microenvironment Regulation for Enhanced Sonodynamic Bacterial Elimination and Tissue Repair. *Advanced Functional Materials* 2023, 33, 2212489
7. Wang, Z. K.; Zhang, P.; Yin, C. Y.; Li, Y. Q.; Liao, Z. Y.; Yang, C. H.; Liu, H.; Wang, W. Y.; Fan, C. D.*; Sun, D. D.*; **Cheng, L.***, Antibiotic-Derived Carbon-Nanodot-Decorated Hydrogel for Reactive Oxygen Species-Enhanced Anti-Infection Through Biofilm Damage. *Advanced Functional Materials* 2023, 33, 2300341

8. Gong, F.; Xu, J.; Liu, B.; Yang, N.; **Cheng, L.***; Huang, P.; Wang, C.; Chen, Q.; Ni, C.*; Liu, Z.* , Nanoscale CaH₂ materials for synergistic hydrogen-immune cancer therapy. *Chem* 2022, 8 (1), 268-286.
9. Yang, N.; Gong, F.; Liu, B.; Hao, Y.; Chao, Y.; Lei, H.; Yang, X.; Gong, Y.; Wang, X.; Liu, Z.*; **Cheng, L.***, Magnesium galvanic cells produce hydrogen and modulate the tumor microenvironment to inhibit cancer growth. *Nature Communications* 2022, 13 (1), 1-12.
10. Hou, L.; Gong, F.*; Han, Z.; Wang, Y.; Yang, Y.; Cheng, S.; Yang, N.; Liu, Z.; **Cheng, L.***, *Angew. Chem. Int. Ed.* 2022, e202208849; *Angew. Chem. Int. Ed.*, 2022, e202208849.
11. Lei, H.; Kim, J. H.; Son, S.; Chen, L.; Pei, Z.; Yang, Y.; Liu, Z.*; **Cheng, L.***; Kim, J. S.* , Immunosynthetic Therapy Designed with Activatable Sonosensitizer and Immune Stimulant Imiquimod. *ACS Nano* 2022, 16, 110979-110993
12. Gao, X.; Han, Z.; Huang, C.; Lei, H.; Li, G.; Chen, L.; Feng, D.; Zhou, Z.; Shi, Q.; **Cheng, L.***; Zhou, X.* , An anti-inflammatory and neuroprotective biomimetic nanoplatfor for repairing spinal cord injury. *Bioactive Materials* 2022, 18, 569-582
13. Wu, K.; Zhu, D.; Dai, X.; Wang, W.; Zhong, X.; Fang, Z.; Peng, C.; Wei, X.; Qian, H.; Chen, X., **Cheng L.***, Bimetallic oxide Cu_{1.5}Mn_{1.5}O₄ cage-like frame nanospheres with triple enzyme-like activities for bacterial-infected wound therapy. *Nano Today* 2022, 43, 101380
14. Li, G.; Zhong, X.; Wang, X.; Gong, F.; Lei, H.; Zhou, Y.; Li, C.; Xiao, Z.*; Ren, G.; Zhang, L.; Dong, Z.*; Liu, Z.; **Cheng, L.***, Titanium carbide nanosheets with defect structure for photothermal-enhanced sonodynamic therapy. *Bioactive Materials* 2022, 8, 409-419
15. Wang, X. W.; Zhong, X. Y.; Li, J. X.; Liu, Z.*; **Cheng, L.***, Inorganic nanomaterials with rapid clearance for biomedical applications. *Chemical Society Reviews* 2021, 50 (15), 8669-8742.
16. Yang, N. L.; Gong, F.; **Cheng, L.***; Lei, H. L.; Li, W.; Sun, Z. B.; Ni, C. F.; Wang, Z. H.; Liu, Z.* , Biodegradable magnesium alloy with eddy thermal effect for effective and accurate magnetic hyperthermia ablation of tumors. *National Science Review* 2021, 8, nwa122
17. Zhang, R.; **Cheng, L.***; Dong, Z. L.; Hou, L. Q.; Zhang, S. H.; Meng, Z. Q.; Betzer, O.; Wang, Y. H.; Popovtzer, R.; Liu, Z.* , Ultra-small natural product based coordination polymer nanodots for acute kidney injury relief. *Materials Horizons* 2021, 8 (4), 1314-1322.
18. Zhong, X. Y.; Wang, X. W.; Li, J. X.; Hu, J.*; **Cheng, L.***; Yang, X. L.* , ROS-based dynamic therapy synergy with modulating tumor cell-microenvironment mediated by inorganic nanomedicine. *Coordination Chemistry Reviews* 2021, 437
19. Yang, N. L.; Gong, F.; Zhou, Y. K.; Hao, Y.; Dong, Z. L.; Lei, H. L.; Zhong, L. P.; Yang, X. Y.; Wang, X. W.; Zhao, Y. X.*; Liu, Z.; **Cheng, L.***, A general in-situ reduction method to prepare core-shell liquid-metal / metal nanoparticles for photothermally enhanced catalytic cancer therapy. *Biomaterials* 2021, 277.
20. Wang, X. W.; Wang, X. Y.; Yue, Q. F.; Xu, H. Z.; Zhong, X. Y.; Sun, L. N.; Li, G. Q.; Gong, Y. A.; Yang, N. L.; Wang, Z. H.; Liu, Z.; **Cheng, L.***, Liquid exfoliation of TiN nanodots as novel sonosensitizers for photothermal-enhanced sonodynamic therapy against cancer. *Nano Today* 2021, 39.
21. Gong, F.; **Cheng, L.***; Yang, N.; Gong, Y.; Ni, Y.; Bai, S.; Wang, X.; Chen, M.; Chen, Q.; Liu, Z.* , Preparation of TiH_{1.924} Nanodots by Liquid-phase Exfoliation for Enhanced Sonodynamic Cancer Therapy. *Nature Communications* 2020, 11, 3712
22. Wang, X.; Zhong, X.; Bai, L.; Xu, J.; Gong, F.; Dong, Z.; Yang, Z.; Zeng, Z.; Liu, Z.; **Cheng, L.*** , Ultrafine Titanium Monoxide (TiO_{1+x}) Nanorods for Enhanced Sonodynamic Therapy. *Journal of the American Chemical Society* 2020, 142 (14), 6527-6537.
23. Zhong, X.; Wang, X.; **Cheng, L.***; Tang, Y. a.; Zhan, G.; Gong, F.; Zhang, R.; Hu, J.*; Liu, Z.; Yang, X.* , GSH-Depleted PtCu₃ Nanocages for Chemodynamic- Enhanced Sonodynamic Cancer Therapy. *Advanced Functional Materials* 2020, 30 (4), 1907954
24. Son, S.; Kim, J. H.; Wang, X.; Zhang, C.; Yoon, S. A.; Shin, J.; Sharma, A.*; Lee, M. H.*; Cheng, L.*; Wu, J.*; Kim, J. S.* , Multifunctional sonosensitizers in sonodynamic cancer therapy. *Chemical Society Reviews* 2020, 49 (11), 3244-3261
25. Gong, F.; Yang, N.; Wang, X.; Zhao, Q.; Chen, Q.; Liu, Z.; **Cheng, L.***, Tumor microenvironment-responsive intelligent nanoplatfor for cancer theranostics. *Nano Today* 2020, 32, 100851.
26. **Cheng, L.***; Wang, X.; Gong, F.; Liu, T.; Liu, Z.* , 2D Nanomaterials for Cancer Theranostic Applications. *Advanced Materials* 2020, 32 (13), 1902333.
27. Gong, F.; **Cheng, L.***; Yang, N.; Betzer, O.; Feng, L.; Zhou, Q.; Li, Y.; Chen, R.; Popovtzer, R.; Liu, Z.* , Ultrasmall Oxygen-Deficient Bimetallic Oxide MnWO₃ Nanoparticles for Depletion of Endogenous GSH and Enhanced Sonodynamic Cancer Therapy. *Advanced Materials* 2019, 31 (23), 1900730

Books

Nanomedicine with Low Dimensional Inorganic nanomaterials

Professional Certification and Awards

Associate Editor, Journal of Nanobiotechnology (2018-)

Professional Society Membership

2022 Highly Cited Researcher (Materials)

2021 Highly Cited Researcher (Materials)

2020 Highly Cited Researcher (Materials)

2019 Highly Cited Researcher (Materials)

2018 Highly Cited Researcher (Materials)

2017 Highly Cited Researcher (Materials)