澳門大學
UNIVERSIDADE DE MACAU
UNIVERSITY OF MACAU

應用物理及材料工程研究院
INSTITUTO DE FÍSICA APLICADA E ENGENHARIA DE MATERIAIS
INSTITUTE OF APPLIED PHYSICS AND MATERIALS ENGINEERING

IAPME Newsletter

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✧ Content

❖ Publications (IF≥8, and/or Nature Index; *corresponding author)

1. **Quansheng Cheng**, Qingcheng Wang, and **Songnan Qu**. Photon-triggered pyroptosis and ferroptosis dual-functional nanoplatform for cancer immunotherapy. *Light-Science & Applications*, 14(1), 104. DOI:10.1038/s41377-025-01757-6. [2023 IF=20.6]

Cheng et al. *Light: Science & Applications* (2025)14:104
https://doi.org/10.1038/s41377-025-01757-6

NEWS & VIEWS Open Access

Photon-triggered pyroptosis and ferroptosis dual-functional nanoplatform for cancer immunotherapy

Quansheng Cheng[1], Qingcheng Wang[1] and Songnan Qu[1,2]✉

❖ Research Stories

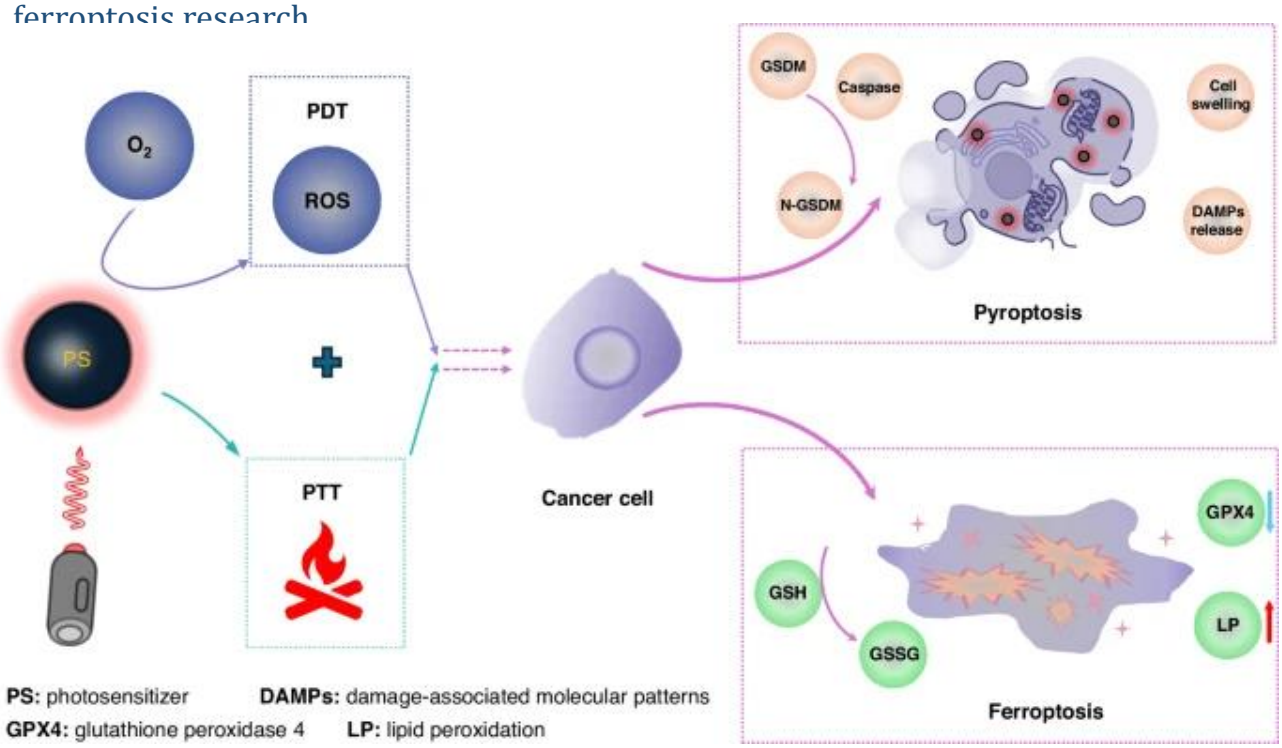
UM research team successfully provided groundbreaking viewpoints to Photon-triggered pyroptosis and ferroptosis dual-functional nanoplatform for cancer immunotherapy

- A dual-functional nanoplatform is demonstrated that is found to have the characteristics of cancer cell targeting, pH response, near-infrared fluorescence imaging, and lysosome targeting. It can simultaneously achieve pyroptosis and ferroptosis under the mediation of photons for cancer immunotherapy.

Mr. Quansheng Cheng (程全勝)

Prof. Songnan Qu (曲松楠)

- It is foreseeable that the proposed strategy can give reference to other materials (not limited to CDs) for phototherapy applications. This serves to underscore the utility of the nanoplatform design and suggests exciting directions for future pyroptosis-ferroptosis research.



Quansheng Cheng, Qingcheng Wang, and **Songnan Qu**. Photon-triggered pyroptosis and ferroptosis dual-functional nanoplatform for cancer immunotherapy. *Light-Science & Applications*, 14(1), 104. DOI:10.1038/s41377-025-01757-6. [2023 IF=20.6]

Prof. Songnan Qu is the corresponding author of this study. The first author is Quansheng Cheng, a PhD student in the IAPME.

❖ Ph.D. Student Thesis Oral Defenses

Tesen Zhang of Prof. Handong Sun & Prof. Zikang Tang's group presented "Self-trapped Excitons in Carbon Dots for Bioimaging and Cancer Therapy" in his oral defense on March 10, 2025.

Congratulations to Dr. Tesen Zhang!

(from left) Prof. Guichuan Xing (邢貴川), Prof. Huakang Yu (虞華康, SCUT), Prof. Zikang Tang (湯子康), Dr. Tesen Zhang (張特森), Prof. Handong Sun(孫漢東), Prof. Hui Pan (潘暉) and Prof. Shuangpeng Wang (王雙鵬)

❖ Upcoming Events

INSTITUTE OF APPLIED PHYSICS AND MATERIALS ENGINEERING
STUDENT SEMINAR SERIES 2025

Date: 27 March 2025 (Thursday)
Time: 14:30 – 17:00
Venue: Seminar Room N23-4018

1ST ROUND

CUI Xiangyue
Theoretical Insights into Phonon Transport and Electron-Phonon Coupling in $MoTe_2$

DING Ting
Atomic Layer-Deposited Silane Coupling Agent for Interface Passivation of Quantum Dot Light-Emitting Diodes

JIANG Qingbin
Tuning Electronic Properties of Transition Metal Electrocatalysts for Lithium-Sulfur Batteries

LI Rui
Ferroelectricity Enhances Ion Migration in Hard Carbon Anodes for Potassium Ion Batteries

LI Xue
Achieving High Freeze-Thaw Durability for Air-Entrained Cementitious Materials

- Engage with emerging research in optoelectronics, energy storage, and sustainable materials
- Network with peers and faculty
- Light refreshments provided!

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ALL ARE WELCOME!

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