

Distinguished Prof. Dong-Hwang Chen

陳東煌 特聘教授

Ph.D. : Department of Chemical Engineering

National Cheng Kung University

Email : chendh@mail.ncku.edu.tw

Phone : 886-6-2757575 ext 62680

Office : Room No.93718 (7F)



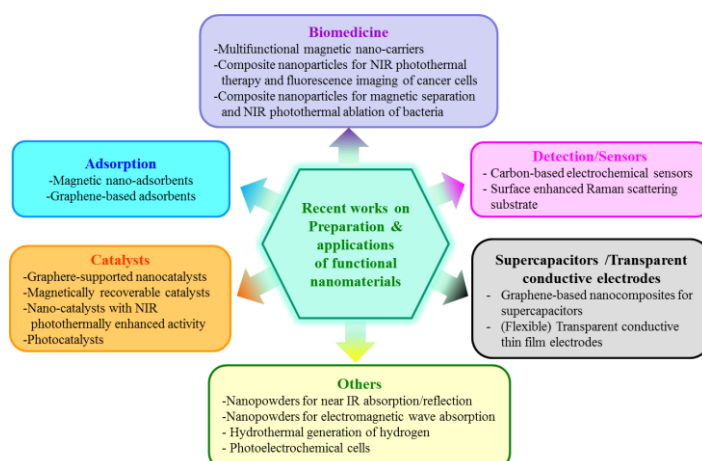
Research Interests

Preparation and applications of nanomaterials

1. Multifunctional nano-carriers for biomedical applications such as cancer therapy and antibacterial
2. Magnetic nano-adsorbents and magnetically recoverable nano-catalysts for pollutants removal
3. Photocatalysts, metal nano-catalysts and those with NIR photothermally enhanced activity
4. Graphene-based quantum dots and silicon and up-conversion fluorescence nanoparticles
5. Development and application of surface-enhanced Raman scattering (SERS) substrates
6. Development and application of carbon-based electrochemical sensors
7. (Flexible) Transparent conductive thin film electrodes
8. Fabrication of graphene-based nanocomposites for supercapacitors
9. Others: NIR absorption/reflection nanoparticles, Electromagnetic wave absorption materials, hydrogen generation, photoelectrochemical cells

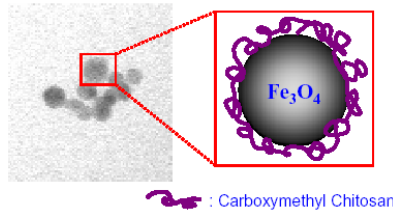
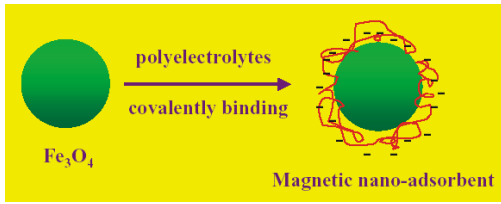
Representative Publications

1. One-pot green synthesis of silver/iron oxide composite nanoparticles for 4-nitrophenol reduction, *J. Hazard. Mater.*, 248-249, 394-400 (2013).
2. LaB₆ nanoparticles with carbon-doped silica coating for fluorescence imaging and near-IR photothermal therapy of cancer cells, *Acta Biomaterialia*, 9, 7556-7563 (2013); Vancomycin-modified LaB₆@SiO₂/Fe₃O₄ composite nanoparticles for near-infrared photothermal ablation of bacteria, *Acta Biomaterialia*, 9, 7573-7579 (2013).
3. Ni/reduced graphene oxide nanocomposite as a magnetically recoverable catalyst with near infrared photothermally enhanced activity, *Appl. Cat. B: Environ.*, 150-151, 298-304 (2014).
4. Highly sensitive, uniform, and reusable surface-enhanced Raman scattering substrate with TiO₂ interlayer between Ag nanoparticles and reduced graphene oxide, *ACS Appl. Mater. Interfaces*, 7(49), 27571-27579 (2015).



■ Polymer-coated magnetic nano-adsorbent

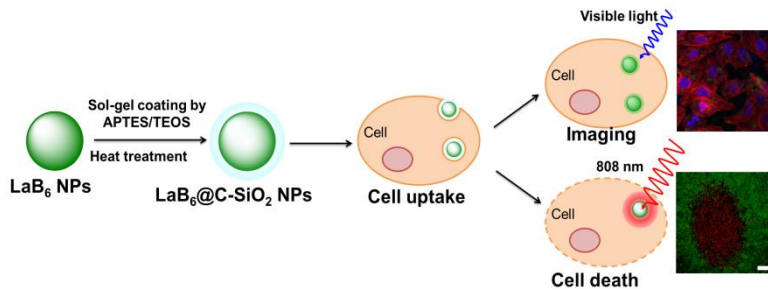
- high adsorption capacity ; fast adsorption/desorption rates; can be magnetically manipulated; particularly useful for macromolecules
- recoverable catalyst support



Carboxymethyl Chitosan

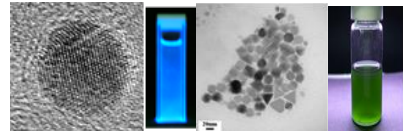
■ LaB₆-based composite nanoparticles

-fluorescence imaging and NIR photothermal therapy

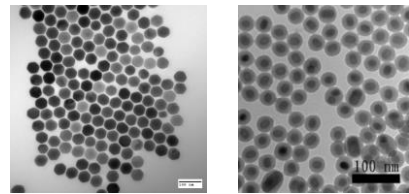


■ Flurescent nanoparticles

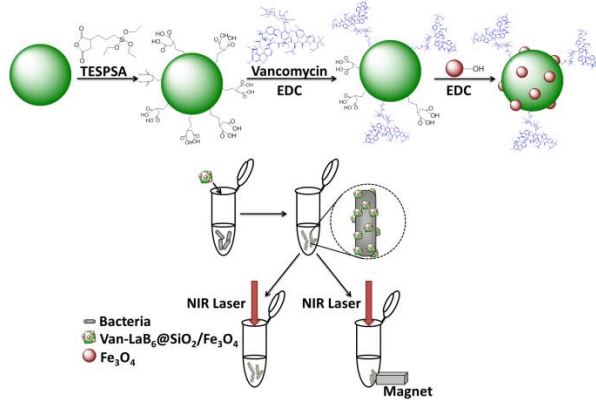
Si FeSi



NaYF₄:Yb,Er NaYF₄:Yb,Er@SiO₂

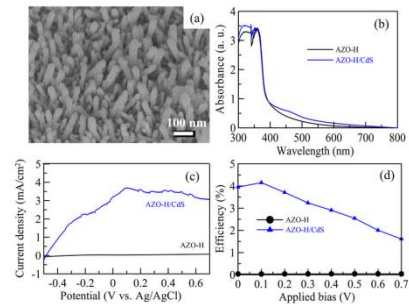


- NIR photothermal ablation of bacteria



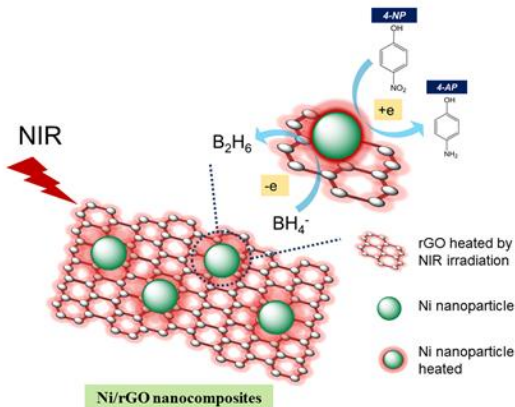
■ CdS/Al-doped ZnO Nanorod arrays

H₂ treatment enhances photocurrent



■ Graphene-based nano-catalysts

with NIR photothermally enhanced activity



■ Hydrothermal generation of hydrogen gas by iron powders

