

Huan-Tsung Chang



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Education : Ph.D., Iowa State University

Specialty : Analytical Chemistry and Nanoscience

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Research Direction

We focus on preparation of nanomaterials through green approaches and their applications in sensing, cell imaging, nanodrugs, nanozymes, nanocatalysts, and new energy sources. Specific topics of interests include:

- (I) Development of gold, silver, copper, and carbon based optical probes.
- (II) Preparation of nanodrugs for antibacterial, anticoagulation, and anticancer.
- (III) Fabrication and applications of microstructures of nanomaterials.
- (IV) Nanomaterials for fuel cells, supercapacitors, and reduction of carbon dioxide.

Publications

Total papers published in international journals: 399

Selected Papers:

1. Anand, A.; Jian, H.-J.; Huang, H.-H.; Hean, L.E.; Li, Y.-J.; Lai*, J.-Y.; Chou, H.-D.; Kang, E.Y.-C.; Wu, W.-C.; Lai, C.-C.; Huang, C.-C.; H.-T. Chang* "Anti-angiogenic Carbon Nanovesicles Loaded with Bevacizumab for the Treatment of Age-related Macular Degeneration" *Carbon* 2023, 201, 362-370.
2. Lin, Y.-F.; Lin, Y.-S.; Huang, T.-Y.; Wei, S.-C.; Wu, R.-S.; Huang, C.-C.; Huang, Y.-F.*; Chang, H.-T.* "Photoswitchable Carbon-dot Liposomes Mediate Catalytic Cascade Reactions for Amplified Dynamic Treatment of Tumor Cells" *Journal of Colloid and Interface Sci.* 2022, 628, 717-725.

3. Wu, R.-S.; Lin, Y.-S.; Nain, A.; Unnikrishnan, B.; Lin, Y.-F.; Yang, C.-R.; Chen, T.-H.; Huang, Y.-F.*; Huang, C.-C.; Chang, H.-T.* "Evaluation of Chemotherapeutic Response in Living Cells Using Subcellular Organelle-Selective Amphipathic Carbon Dots" *Biosens. Bioelectron.* 2022, 211, 114362.
4. Sangili, A.; Unnikrishnan, B.; Nain, A.; Hsu, Y.-J.; Wu, R.-S.; Huang, C.-C. *; Chang, H.-T.* "Stable Carbon Encapsulated Titanium Carbide MXene Aqueous Ink for Fabricating High-performance Supercapacitors" *Energy Storage Mater.* 2022, 53, 51–61.
5. Lin, W.-J.; Lin, Y.-S.; Chang, H.-T.*; Unnikrishnan, B.; Huang, C.-C.* "Electrocatalytic CuBr@CuO Nanoparticles Based Salivary Glucose Probes" *Biosens. Bioelectron.* 2021, 194, 113610.
6. Wu, C.-W.; Unnikrishnan, B.; Chen, I.-W. P.; Harroun, S. G.; Chang, H.-T.*; Hung, C.-C.* "Excellent Oxidation Resistive MXene Aqueous Ink for Micro-Supercapacitor Application" *Energy Storage Mater.* 2020, 25, 563–571.
7. Xu, D.; Lin, Q.*; Chang, H.-T.* "Recent Advances and Sensing Applications of Carbon Dots" *Small Methods* 2019, 4, 1900387.
8. Chen, T.-H.; Chang, H.-T.* "Stable and Photoswitchable Carbon-Dot Liposome" *ACS Appl. Mater. Inter.* 2017, 9, 44259–44263.
9. Chen, P.-C.; Periasamy, A. P.; Harroun, S. G.; Wu, W.-P.; Chang, H.-T.* "Photoluminescence Sensing Systems Based on Copper, Gold and Silver Nanomaterials" *Coord. Chem. Rev.* 2016, 320, 129–138.
10. Chen, W.-Y.; Chang, H.-Y.; Lu, J.-K.; Huang, Y.-C.; Harroun, S. G.; Tseng, Y.-T.; Li, Y.-J.; Huang, C.-C.; Chang, H.-T.* "Self-Assembly of Antimicrobial Peptides on Gold Nanodots: Against Multidrug-Resistant Bacteria and Wound Healing Application" *Adv. Funct. Mater.* 2015, 25, 7189–7199.
11. Shih, C.-C.; Chen, P.-C.; Lin, G.-L.; Wang, C.-W.; Chang, H.-T.* "Optical and Electrochemical Applications of Silicon-Carbon Dots/Silicon Dioxide Nanocomposites" *ACS Nano* 2015, 9, 312–319.

12. Hsu, P.-C.; Chang, H.-T.* "Synthesis of High-Quality Carbon Nanodots from Hydrophilic Compounds: Role of Functional Groups" *Chem. Commun.* 2012, 3984–3986
13. Shiang, Y.-C.; Hsu, C.-L.; Huang, C.-C.*; Chang, H.-T.* "Gold Nanoparticles Presenting Hybridized Self-Assembled Aptamers That Exhibit Enhanced Inhibition of Thrombin" *Angew. Chem. Int. Ed.* 2011, 50, 7660–7665.
14. Yang, Z.; Chen, C.-Y.; Liu, C.-W.; Li, C.-L.; Chang, H.-T.* "Quantum Dot-Sensitized Solar Cells Featuring CuS/CoS Electrodes Provide 4.1% Efficiency" *Adv. Energy Mater.* 2011, 1, 259–264.
15. Chiang, C.-K.; Chen, W.-T.; Chang, H.-T.* "Nanoparticle-Based Mass Spectrometry for the Analysis of Biomolecules" *Chem. Soc. Rev.* 2011, 40, 1269–1281.
16. Lan, G.-Y.; Huang, C.-C.; Chang, H.-T.* "Silver Nanoclusters as Fluorescent Probes for Selective and Sensitive Detection of Copper Ions" *Chem. Commun.* 2010, 46, 1257–1259.
17. Yang, Z.; Chen, C.-Y.; Liu, C.-W.; Chang, H.-T.* "Electrocatalytic Sulfur Electrodes for CdS/CdSe Quantum Dot-Sensitized Solar Cells" *Chem. Commun.* 2010, 46, 5485–5487.
18. Huang, C.-C.; Yang, Z.; Lee, K.-H.; Chang, H.-T.* "Synthesis of Highly Fluorescent Gold Nanoparticles for Sensing Mercury(II)" *Angew. Chem. Int. Ed.* 2007, 46, 6824–6828.
19. Lin, Y.-W.; Tseng, W.-L.*; Chang, H.-T.* "Using a Layer-by-Layer Assembly Technique to Fabricate Multicolored-Light-Emitting Films of CdSe@CdS and CdTe Quantum Dots" *Adv. Mater.* 2006, 18, 1381–1386.
20. Huang, C.-C.; Chang, H.-T.* "Selective Gold Nanoparticle-Based "Turn-On" Fluorescent Sensors for Detection of Mercury(II) in Aqueous Solution" *Anal. Chem.* 2006, 78, 8332–8338.

Awards

Awards

1. Highly Cited Researchers, Clarivate Analytics 2017, 2018
2. Prof. Rudolph A. Marcus Award 2017 2017
3. Academic Achievement Award, Chinese Chemical Society 2015
4. Fellow of the Royal Society of Chemistry, UK 2013
5. Y. Z. Hsu Scientific Paper Award, Far Eastern Y. Z. Hsu Science and Technology Memorial Foundation 2008
6. Outstanding Research Award, National Science Council 2007
7. Fu Szu-Nien Award, National Taiwan University 2005
8. Young Scientist Award, College of Science, National Taiwan University 2000
9. Chinese Young Chemist Award, Chinese Chemical Society 2000

E Editorial Positions

1. Field Chief Editor: Frontiers in Analytical Science (2021~)
2. Honorable Editor: International Journal of Biosensors & Bioelectronics (IJBSBE) (2016~)
3. Executive Associate Editor: Analytical Sciences (2019~)
4. Associate Editor: Journal of Chinese Chemical Society (2006-2014), Frontiers in Chemistry (Impact Factor: 5.545; 2013~; Analytical); Journal of Food and Drug Analysis (Impact Factor: 6.079; 2018~); Biosensors and Bioelectronics (Impact Factor: 12.545; 2019~)
5. Editorial Advisory Board: Journal of Advanced Research (Impact factor: 12.822; Science; 2014~); JACS Au (2021~)