Prof. Chia-Yu Lin

林家裕 教授

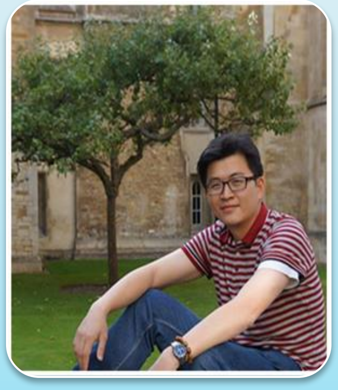
Ph.D.： Chemical Engineering, National Taiwan University

Email： Cyl44@mail.ncku.edu.tw

Phone： 886-6-2757575 Ext 62664

Office： Room No.93711 (7F)

Labsite: http://ppt.cc/cZm4



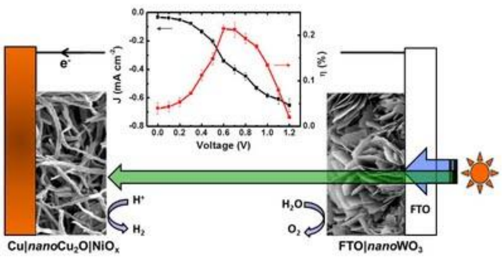
Research Interests

The research interests of our laboratory are to apply material science, electrochemistry, and interfacial and surface chemistry for the nanostructured materials synthesis and their applications in the energy conversion devices and electrocatalysis process, including dye-sensitized solar cells, photoelectrochemical water splitting and reduction carbon dioxide into chemical fuels, and chemical sensors.

Representative Publications

1. **C.-Y. Lin*** and C.-T. Chang, *Sens. Actuators B-Chem*., 220 (2015) 695-704**.**
2. **C.-Y. Lin**, D. Mersch, D. A. Jefferson, Erwin Reisner*, *Chem. Sci*., 5 (2014) 4906-4913.
3. L. Zhang*, **C.-Y. Lin**, V. K. Valev, E. Reisner*, U. Steiner, J. J. Baumberg*, *Small*, 10 (2014) 3970-3978.
4. Y.-H. Lai, **C.-Y. Lin**, Y. Lv, T. C. King, A. Steiner, N. M. Muresan, L. Gan, D. S. Wright*, and E. Reisner*, *Chem. Commun*., 49 (2013) 4331-4333.
5. **C.-Y. Lin**, Y.-H. Lai, D. Merch, E. Reisner*, *Chem. Sci*., 3 (2012) 3482-3487.
6. C.-W. Kung, **C.-Y. Lin**, R. Vittal, and K.-C. Ho*, *Sens. Actuators B-Chem.*, 182 (2013) 429-438.
7. C.-W. Kung, H.-W. Chen, **C.-Y. Lin**, K.-C. Huang, R. Vittal, K.-C. Ho*, *ACS Nano*, 6 (2012) 7016-7025.
8. T.-J. Li, **C.-Y. Lin** A. Balamurugan, C.-W. Kung, J.-Y. Wang, C.-W. Hu, C.-C. Wang, P.-Y. Chen, R. Vittal, and K.-C. Ho*, *Anal. Chim. Acta*, 737 (2012) 55-63.
9. C.-W. Kung, **C.-Y. Lin**, Y.-H. Lai, R. Vittal, K.-C. Ho*, *Biosen. Bioelectron*., 27 (2011) 125-131.
10. **C.-Y. Lin**, Y.-H. Lai, H.-W. Chen, J.-G. Chen, and K.-C. Ho*, *Energ. Environ. Sci*., 4 (2011) 3448-3455.
11. H.-W. Chen, **C.-Y. Lin**, Y.-H. Lai, J.-G. Chen, C.-C. Wang, C.-W. Hu, C.-Y. Hsu, R. Vittal, and K.-C. Ho*, *J. Power Sources*, 196 (2011) 4859-4864.
12. **C.-Y. Lin**, Y.-Y. Fang, C.-W. Lin, J.-J. Tunney, and K.-C. Ho*, *Sens. Actuators B-Chem*., 146 (2010) 28-34.
13. **C.-Y. Lin**, A. Balamurugan, Y.-H. Lai, and K.-C. Ho*, *Talanta*, 82 (2010) 1905-1911.
14. **C.-Y. Lin**, Y.-H. Lai, A. Balamurugan, C.-W. Lin, R.-Vittal, and K.-C. Ho*, *Talanta*, 82 (2010) 340-347.
15. Y.-H. Lai, **C.-Y. Lin**, H.-W. Chen, J.-G. Chen, C.-W. Kung, R. Vittal, and K.-C. Ho*, *J. Mater. Chem.*, 20 (2010) 9379-9385.

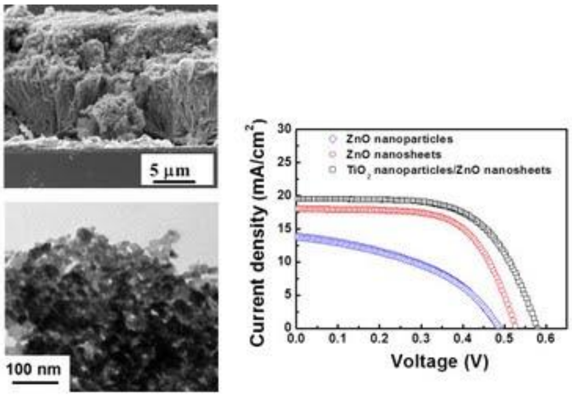
Photoelectrochemical (PEC) water splitting



A PEC water splitting cell made of a p-type $Cu_2O|NiO_x$ nanocomposite photocathode and an n-type WO_3 nanosheet photoanode. The well-aligned band level allows for PEC water splitting without external bias.

(ref: *Chem. Sci.*, **2012**, *3*, 3482-3487)

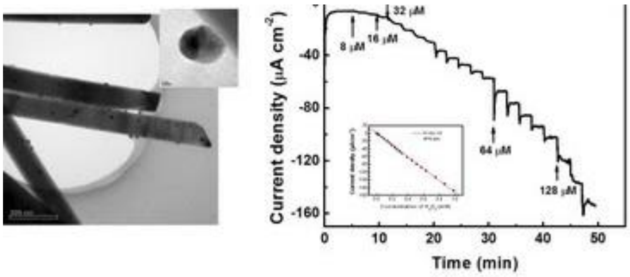
Dye-sensitized solar cells



TiO_2 nanoparticles|ZnO nanosheets composite photoanode in dye-sensitized solar cell application. The porous nanosheet architecture allows fast electron tranport, high surface area, and fast diffusion of the electrolyte. The energy conversion efficiency (7.07%) achieved for the best DSSC in this work is the highest ever reported for a DSSC with ZnO as the main semiconductor material.

(ref: *Energy Environ. Sci.*, **2011**, *4*, 3448-3455.)

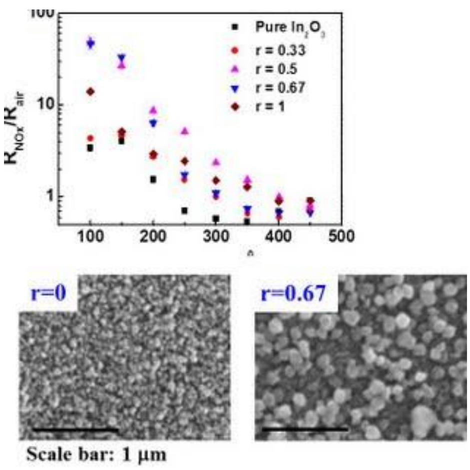
Electrochemical sensor



Ag nanoparticle functionalized ZnO nanorod electrode, prepared by simple chemical bath deposition (ZnO nanorods) and photochemical assisted deposition (Ag nanoparticles), for the electrochemical detection of hydrogen peroxide.

(ref: *Talanta*, **2010**, *82*, 340-347)

Chemi-resistive type Gas sensor



Highly sensitive and low-operation-temperature NOx gas sensor was developed by simply using In_2O_3-ZnO nanoparticulate film. Under optimal conditions, the limit detection of 12 ppb can be achieved and the developed sensor show high selectivity against CO gas.

(ref: *Sens. Actuators B-Chem.*, **2010**, *146*, 28-34)