

Hong-Wen Wang

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Professor, Department of Chemistry

Nanomaterials synthesis, Electronic ceramics, Dye-sensitized solar cells, Hydrogen generation



◆ Research Interests

- ◆ Prof. Wang's research interests include the processing, and electrical properties of dielectric ceramic materials. His research involved ceramic powder processing, nanoparticles, nanowires, nanotubes, and thin films through chemical solutions such as sol-gel, microwave hydrothermal process, and electrophoretic deposition. The applications of materials he involved are in solar energy, dye-sensitized solar cells, and hydrogen generation.

◆ Selected Publications

- ◆ **Hong-Wen Wang**, Hsing-Wei Chung, Hsin-Te Teng, Guozhong Cao, "Generation of hydrogen from aluminum and water - Effect of metal oxide nanocrystals and water quality" *Inter. J. Hydrogen Energy*, 36(2011)15136-15144
- ◆ Kao-Zeng Sun, Ying-Chien Chen, **Hong-Wen Wang***, "Fabrication of highly ordered TiO₂ nanotube-arrays by potentiostatic anodizing titanium foils and its photocurrent characterization" *Mater. Chem. Phys.* 129 (2011)35-39
- ◆ **Hong-Wen Wang***, Chi-Feng Ting, Miao-Ken Hung, , Chwei-Huann Chiou , Ying-Ling Liu, Zongwen Liu, Kyle R. Ratinac, Simon P. Ringe "Three-dimensional (3D) electrodes for dye-sensitized solar cells: synthesis of indium-tin-oxide (ITO) nanowires arrays and ITO/TiO₂ core-shell nanowires arrays by electrophoretic deposition" *Nanotechnology* 20(2009) 055601
- ◆ **Hong-Wen Wang***, Chain-Fang Shieh, His-Yi Chen, Wei-Chuan Shiu, Bryan Russo, Guozhong Cao "Standing [111] Gold Nanotubes to Nanorods Arrays via Template Growth" *Nanotechnology*, 17 (2006) 2689-2694
- ◆ **Hong-Wen Wang***, Chien-Hung Kuo, Hsiu-Chu Lin, I-Ting Kuo, Chi-Feng Cheng "Rapid formation of active mesoporous TiO₂ photocatalysts via micelle in microwave hydrothermal process" *J. American Ceramic Society*, 89[11](2006)3388-3392

◆ Recent Research Projects

- ◆ NSC 2010-2013 Effects of 3D electrodes and Novel Photoanodes on the Performance of Dye-Sensitized Solar Cells (I~III)