Prof. Kuo, Ping-Lin (郭炳林教授)
Ph.D.：Applied Chemistry, Osaka University, Japan
Email：plkuo@mail.ncku.edu.tw
Phone：886-6-2757575 ext 62658

Research Interests

- Synthesis and Application of Water-Soluble Polymer
- Preparation and Application of Nanoparticles
- Electrolyte and Electrode for Li-ion Battery and Fuel Cells
- Silicon-containing Polyme
- Coating materials
- Flame-retardant

My research fields mainly is to synthesize many types of amphiphlic polymer series to act as polyelectrolytes for Li-battery, Fuel cell and DSSC, and as stabilizer to prepare metal or metaloxide nanoparticles for the purpose of electrode and of fuel cell, DSSC and Li-battery.

Representative Publications

Journal

1.Chen, W. F.; Kuo, P. L.*, "Covalently Cross-linked Perfluorosulfonated Membranes with Polysiloxane Framework" Macromolecules, 40, 1987, **2007**.

2. Kuo, P. L.; Liang, W. J.; Hsu, C. Y.; Jheng, W. H. "Preparation, characterization, and properties of new crosslinked proton-conducting membranes with polyoxyalkylene moieties" Polymer , 49,1792, **2008**

3. Chen, W. F.; Wu, J. S.; Kuo, P. L. "Polyoxyalkylenediamine- Functionalized Carbon Nanotubes/ Perfluorosulfonated Polymer Composites: Synthesis, Water State and Conductivity" Chemistry of Materials, 50,5756, **2008**

4. Chen, W. F.; Wang, J. P.; Hsu, C. H.; Jhan, J. Y.; Teng, Hsisheng; Kuo, P. L.*, "Nanostructured Coral-like Carbon as Pt Support for Fuel Cells" *The Journal of Physical Chemistry C*, 6976-6982, 114, **2010.**

5. Hsu, C. H.; Liao, H. Y.; Kuo, P. L.* "Aniline as a Dispersant and Stabilizer for the Preparation of Pt Nanoparticles Deposited on Carbon Nanotubes" *The Journal of Physical Chemistry C*, 7933-7939, 114, **2010.**

6. Hsu, C. H.; Wu, H. M.; Kuo, P. L.* "Excellent Performance of Pt^0 on High Nitrogen-Containing Carbon Nanotubes Using Aniline as Nitrogen/Carbon Source, Dispersant and Stabilizer" *Chemical Communications,* 7628-7630, 46*,* **2010.**

7. H.-C. Huang; C.-W. Huang; C.-T. Hsieh; P.-L. Kuo; J.-M. Ting; H. S. Teng* "Photocatalytically Reduced Graphite Oxide Electrode for Electrochemical Capacitors" *Journal of Physical Chemistry C* 20689–20695, 115, **2011.**

8. C.-W. Huang, C.-T. Hsieh, P.-L. Kuo, H. S. Teng* "Electric double layer capacitors based on a composite electrode of activated mesophase pitch and carbon nanotubes" *Journal of Materials Chemistry* 7314-7322, 22, **2012**.

9. Chen, W. F.; Shen, Y. C, Hsu, H. M. and Kuo, P. L.* "Continuous Channels Created by Self-Assembly of Ionic Cross-Linked Polysiloxane/Nafion Nanocomposites" *Polymer Chemistry* 1991-1995, 3, **2012**

10. Huang-Ming Hsu, Ping-Kai Cheng, Wei-Fu Chen, Meng-Hsin Kuo, Chi-Chang Chen and Ping-Lin Kuo* "Highly conductive, crosslinked ionomers based on poly(styrene-co-maleic anhydride) for water electrolysis" *Journal of Materials Chemistry A*, 8093–8096, 1, **2013**.

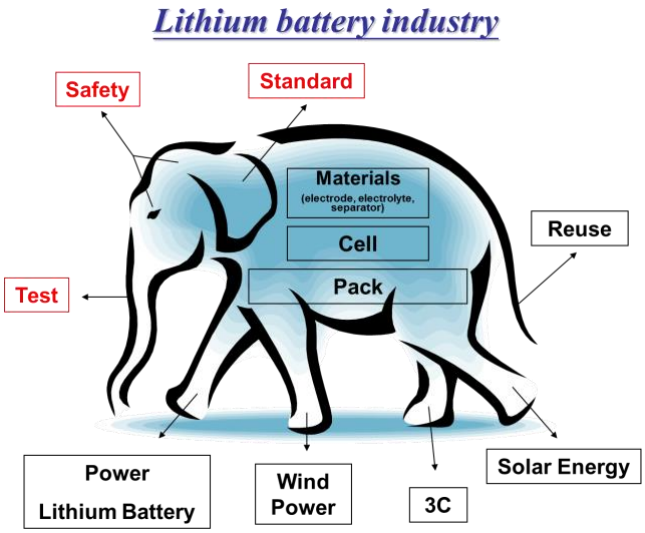
11. Ping-Lin Kuo*, Tzung-Shiue Jan, Chun-Hou Liao, Chi-Chang Chen, Kun-Mu Lee, "Syntheses of Size-Varied Nanorods TiO_2 and Blending Effects on Efficiency for Dye-Sensitized Solar Cells" *Journal of Power Sources* 297-302, 235, **2013**..

Patent

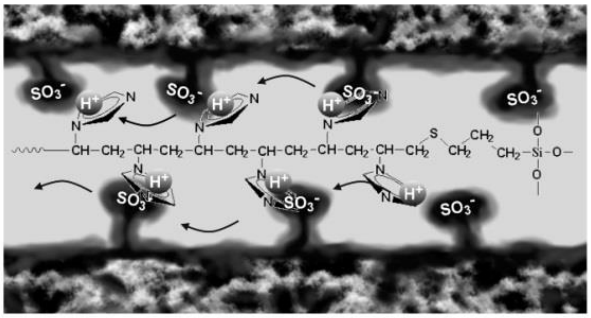
1. Kuo, P. L; Chuang Theng Fu, "SELF-POLISHING ANTIFOULING COATING COMPOSITIONS HAVING A HYDROLYZABLE SILICON-CONTAINING RESIN", *Japan Tokyo* 3704616, **2005**.

2. Ping-Lin Kuo; Hsu-Hui Lin, "Compositions And Method For Surface Treatment of Pigments" , *United States Patent No.*7618489, **2004**

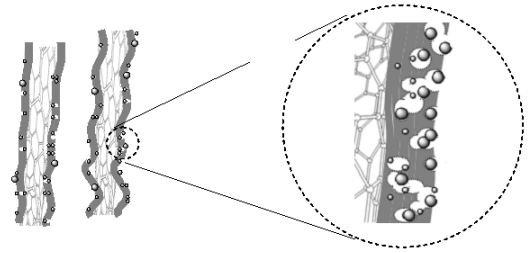
3. Ping-Lin Kuo, Hsu-Hui Lin, "Composition and method for surface treatment of pigments", *Japan Tokyo* 4614694, **2010**



Electrolytes of Fuel Cell



Nano-Pt particales anchored on deboundled CNT



Pt@NC-CNT

Citrate-reduced Pt on Graphene