Zhengcheng Zhang

Argonne National Laboratory
Chemical Sciences and Engineering Division
9700 South Cass Avenue, Bldg. 205
Argonne, IL 60439-4837
phone: 630/252-7868, fax: 630/972-4440
e-mail: zzhang@anl.gov

Professional Experience

- **December 2007-Present**
  Chemist, Technology Development Group, Electrochemical Energy Storage Theme, Chemical Sciences and Engineering Division, Argonne National Laboratory
- **June 2005-Novermber 2007**
  Battery Engineer, Research & Development Department, Quallion, LLC, Sylmar Medical Research Park, California
- **April 2003-June 2005**
  Assistant Scientist, Department of Chemistry, University of Wisconsin-Madison, Madison, Wisconsin
- **August 2000-April 2003**
  Research Associate, Organosilicon Research Center (OSiRC), the University Campus, Madison, Wisconsin

Education

- Ph.D., Polymer Chemistry and Physics, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China, 2000
- M.S., Organic Chemistry, Applied Chemistry Division, Xi'an Modern Chemistry Research Institute, China, 1997

Awards

- 2005 R&D 100 Award project participator (2000-2005)
- Chinese Academy of Sciences Young Academic Seminar, First Prize Award (1998)
- Research grant recipient from Department of Science and Technology, People's Republic of China (1995-1997)
- 2nd Youth English Seminar on Science and Technology, Xi'an, China (1996)

Career Activities & Highlights

- Development of safe and stable electrolytes including siloxanes, silanes, sulfones, fluorinated ether/esters, ionic liquids for electrochemical cells such as lithium battery, super-capacitor and lithium air battery
- Synthesis and evaluation of new molecules with tunable oxidation potentials as redox shuttles for overcharge protection for lithium battery with 4.2V cathode materials

- Design, synthesis and evaluation of new electrolyte additives for lithium ion battery with long cycle life and safety
- Synthesis and investigation of novel lithium complexes as electrolyte salts with multiple functionalities
- Developed functional tetrasiloxane, trisiloxane, disiloxanes and silanes as new generation electrolytes for lithium polymer battery as power for implantable medical devices
- Designed three novel network-type cross-linked polymer electrolytes for all-solid-state lithium polymer battery
- Synthesized novel gel polymer electrolytes with internal plasticizing chains for Li/CFx primary cell for low temperature application (-40°C)
- Developed porous polysiloxane/PVdF-HFP composite polymer membrane technology by extrusion technique that improved the ease in manufacturing of polymer batteries for the Army's Objective Force Soldier Program
- Mechanical strength enhancement of RTV polysiloxane rubber *via* interpenetrating polymer networks (IPNs) technique
- Reviewers of journals including Macromolecules, Journal of Applied Polymer Science, Silicon Chemistry, Chemistry of Materials, Journal of Power Sources, Journal of Electrochemical Society, Electrochimica Acta
- Active member of the Electrochemical Society, the American Chemical Society and the Material Research Society

Publications and Patents

- Publications: 41
- Patents, Patent Applications & Inventions: 24
- Presentations (invited talks, oral presentations and posters): 18