

Zhengcheng Zhang

Argonne National Laboratory
9700 South Cass Avenue, Bldg. 205
Argonne, IL 60439
phone: 630/252-7868, fax: 630/972-4440
e-mail:

Professional Experience

- 2007-present, Argonne National Laboratory, Argonne, IL
 - Advanced polysiloxane polymer electrolytes for lithium-ion battery
 - Advanced Si-based electrolytes for application in supercapacitor
 - Ionic liquid as non-flammable electrolytes for safe lithium-ion battery
 - Novel electrolyte salts development for lithium-ion battery
 - New redox shuttles development for lithium-ion overcharge protection
 - Electrolyte additives for HEV and PHEV applications
- 2005-2007, Quallion, LLC, Sylmar, CA
 - Porous polysiloxane/PVDF-HFP composite film as separator/electrolyte for all-solid-state lithium ion battery
 - Stable electrolyte development at wide temperature range (-60°C~80°C)
 - Advanced siloxane/solane electrolyte for miniature lithium-ion battery for implantable medical devices
 - Evaluation of large-size lithium-ion batteries and their modules for applications in HEV and military applications
 - Li/CFx and Li/SVO primary cell development
 - Gel polymer electrolyte development for Li/CFx primary cell for low-temperature application (-40°C)
- 2003-2005, Staff at University of Wisconsin-Madison, Madison, WI
 - Highly conductive siloxane electrolyte development funded by ATP/NIST
 - Purification technique development for highly pure siloxane-based electrolyte
 - Collaborated with battery company development of miniature lithium-ion battery as power of medical devices
 - Hands-on experiences of analytical characterization for lithium-ion battery materials by NMR, FT-IR, DSC, SEM/EDX, XRD and ICP
- 2000-2003, Research Associate at Organosilicon Research Center, Madison, WI
 - Synthesized a novel cross-linking network type polymer electrolyte by heat-initiated hydrosilylation reaction
 - Synthesized highly conductive siloxanes, including oligo(ethylene glycol)-functionalized tetrasiloxanes, trisiloxanes, disiloxanes and silanes doped with lithium bis(oxalato) borate (LiBOB)
 - Experienced organic/polymer synthesis techniques such as Pt-catalyzed hydrosilylation, B(C₆F₅)₃-catalyzed dehydrocoupling reaction, radical and cationic initiated ring-opening-polymerization

Professional Society Activities

- American Chemical Society (Division of Polymer Chemistry)
- Active member of Electrochemical Society

Education

- PhD, Polymer Chemistry, Chinese Academy of Sciences, Beijing, China
- MS, Organic Chemistry, Xi'an Modern Chemistry Research Institute, China
- BS, General Chemistry, Shandong Normal University, China

Patents and Publications

- 20 patents/patent applications
- 40 peer-reviewed publications
- 15 invited presentations and posters