Advanced Energy Storage

Goal: to catalyze theorists, computational scientists, and experimentalists across multiple disciplines, including chemistry, engineering, materials science, and physics, to collaborate on developing new and innovative ideas to accelerate fundamental science driving advances in energy storage.

Team Awards 2018

Solid Electrolyte Interphase (SEI) "Skin Graft"
Candace Chan, materials science, Arizona State University
Anne Co, chemistry, Ohio State University
Hui (Claire) Xiong, materials science, Boise State University
Funded by the Alfred P. Sloan Foundation.

Probing the Mechanistics of a Molecularly Tailored Solid/Solid Interface
Beth Guiton, chemistry, University of Utah
Partha Mukherjee, mechanical engineering, Purdue University
Luisa Whittaker-Brooks, chemistry, University of Delaware
Funded by Research Corporation.

Solid Electrolytes with Entropy-Enhanced Ionic Conductivity and Stability for High-Energy-Density Lithium Batteries
Yan-Yan Hu, chemistry, Florida State University
Shyue Ping Ong, nanoengineering, University of California, San Diego
Yuan Yang, physics, Columbia University
Funded by Research Corporation.

Water in Redox Active Ionic Liquid (WIL) Electrolytes for Energy Storage
Kah Chun Lau, physics, California State University, Northridge
Tianbao Leo Liu, chemistry, Utah State University
Yuan Yang, physics, Columbia University
Funded by the Alfred P. Sloan Foundation.

e-COBRA: eutectic Co-deposition Based Rechargeable Anodes
Lauren Marbella, chemical engineering, Columbia University
Partha Mukherjee, mechanical engineering, Purdue University
Venkat Viswanathan, mechanical engineering, Carnegie Mellon University
Funded by the Alfred P. Sloan Foundation.

Scaling the sensitivity gap to probe interfaces of high voltage cathodes
Bryan McCloskey, chemical and biomolecular engineering, University of California, Berkeley
Louis Piper, physics, Binghampton University
Funded by Research Corporation.
Team Awards 2017

*Ion REASSIN: Ion Re-coordination at Solid-State Interfaces*

Veronica Augustyn, materials science and engineering, North Carolina State University  
Matthew McDowell, materials science and engineering, Georgia Institute of Technology  
Aleksandra Vojvodic, chemical and biomolecular engineering, University of Pennsylvania  
Funded by Lyda Hill Philanthropies.

*Defining interfacial reactivity in high capacity Li-ion cathode materials*

Jordi Cabana, chemistry, University of Illinois at Chicago  
Bryan McCloskey, chemical and biomolecular engineering, University of California, Berkeley  
Aleksandra Vojvodic, chemical and biomolecular engineering, University of Pennsylvania  
Funded by Research Corporation.

*Proton-Coupled Electron Transfer in Batteries based on Quinone Crystals: Integrated Experimental and Theoretical Approach*

Jahan Dawlaty, chemistry, University of Southern California  
Puja Goyal, chemistry, Binghamton University  
Yan Yao, engineering and materials science, University of Houston  
Funded by Research Corporation.

*High-Voltage Dual-Ion Batteries*

Zhenxing Feng, chemical engineering, Oregon State University  
Shyue Ping Ong, nanoengineering, University of California, San Diego  
Scott Warren, chemistry, University of North Carolina at Chapel Hill  
Funded by Research Corporation.

*Discovery of New Metal Nitrides for Divalent Cation Intercalation Systems*

Aaron Holder, chemistry, University of Colorado, Boulder  
James Neilson, chemistry, Colorado State University  
Funded by Research Corporation.

*ReO$_3$: A model for understanding the participation of anions in redox processes*

Brent Melot, chemistry, University of Southern California  
Louis Piper, physics, Binghamton University  
Funded by Research Corporation.