



# ENERGY RESEARCH CENTER

## High-Energy Start to the '15-'16 Academic Year!

### UMD National Transportation Center Awarded \$4.5 Million Department of Energy Grant

The National Transportation Center at Maryland was awarded funds under ARPA-E's new program TRANSNET (Traveler Response Architecture using Novel Signaling for Network Efficiency in Transportation) to develop Integrated, Personalized, Real-time Traveler Information and Incentive technology. This is the latest in a wealth of awards UMD researchers have received from ARPA-E in the past year. Maryland is one of top universities developing transformative energy technologies under the Advanced Research Projects Agency-Energy, leading the way to new ways to generate, store, and use energy.

For more information visit: [www.ter.ps/90p](http://www.ter.ps/90p)

### University of Maryland Researchers Accept NASA Mission: Build a Better Battery for Space Exploration

UMERC solid-state battery research selected in Phase II of NASA's Game Changing Development program to develop an energy storage technology that will replace the batteries used by the space program. The one-year award of \$1million will advance the technology to commercial-scale with optimized cell structure, readying the battery technology for Phase III of NASA's program next year.

For more information visit: [www.ter.ps/90q](http://www.ter.ps/90q)

### Engineering Students supported by the Wells & Hulka Fellowships

Each year, the Harry K. Wells fellowship supports two graduate students pursuing energy generation or storage research. In addition, The Hulka Energy Research Fellowship supports one graduate student pursuing advanced solar, wind, biofuels, or geothermal energy research.

### Final reports from '14-'15 Wells & Hulka Fellowships winners:

Hulka fellowship winner '14-'15: Alexander Pearse

*"Precision Graphene-Catalyst Composites Enabled by Selective Atomic Layer Deposition for Solar Water Splitting"*

This work showed that the cathode can be sufficiently stabilized in a lithium-oxygen battery such that the limiting factor is the lithium anode, and future work will focus on stabilizing the anode/electrolyte interface.

Wells fellowship winner '14-'15: Laleh Emdadi

*"Cascade Catalysis in Enzymatic Inorganic Systems for Fuels/Chemicals Conversions"*

This study advances the systematic synthesis and characterization of meso-/microporous zeolites that are prepared by soft-templating methods. The study also suggests one-step dual template synthesis strategy can be a general simple approach toward designed synthesis of meso-/microporous zeolites with tailored textural and catalytic performance.

Wells fellowship winner '14-'15: Chao Luo

*"Organic Electrode Materials for Flexible, Transparent and Green Sodium Ion Batteries"*

For the first time, 2,5-Dihydroxy-1,4-benzoquinone disodium salt (DHBQDS) nanorods were in situ synthesized in the electrode fabrication process, which uniquely integrates the nanomaterial synthetic procedure into electrode fabrication process. This demonstrates that DHBQDS is a promising candidate for advanced Na-ion batteries.

For more information about the fellowships and this year's winning student researchers, visit the UMERC webpage: [www.umerc.umd.edu/students/funding](http://www.umerc.umd.edu/students/funding)

## The Center for Young Children visits UMERC

Over the summer, students from the University of Maryland Center for Young Children (CYC) got a special tour of UMERC. They saw the solar panels and electric car charging station, including a charging electric vehicle. The students were also excited to see the UMERC lab, where batteries are developed and tested. Finally they saw and posed for a group photo by the Redox Power Systems “Cube” fuel cell.

For more information visit: [www.ter.ps/90s](http://www.ter.ps/90s)



### Transforming Energy Lecture Series

UMERC hosts monthly Transforming Energy Lectures to showcase exciting energy research, news from important industry leaders, and insights from federal agency administrators. All are welcome to come to these lectures and join in discussing the advances that are, or have the potential to change all aspects of the energy field as we know it today.

This Fall semester, UMERC is excited for our lecture series lineup:

- **September 2nd** - Dr. Ju Li, MIT
- **October 8th** - John Torgerson, Chargepoint
- **November 13th** - Dr. Harry Tuller, MIT
- **December 3rd**, Maria Korsnick, Nuclear Energy Institute

More details can be found on the UMERC website:

[www.energy.umd.edu/transforming-energy-lectures](http://www.energy.umd.edu/transforming-energy-lectures)

### UMERC Faculty Lunch Seminars

During the Spring and Fall semesters, UMERC Faculty are invited to the UMERC Conference room twice monthly to hear about the latest UMERC Faculty research, publications, projects, and potential energy-related funding opportunities. If you have a topic you would like to present during the Fall semester's UMERC faculty lunches, please contact UMERC's Research Coordinator at [amccrum@umd.edu](mailto:amccrum@umd.edu).