August 30, 2016, Issue 6

ENERGY RESEARCH CENTER

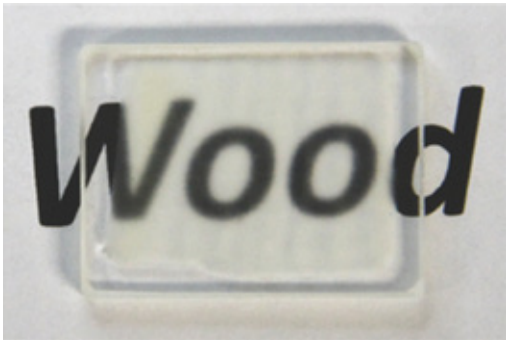
Welcome back for another exciting Fall Semester!

Meet RoCo - the "Roving Comforter" Robot from CEEE

The RoCo, a "roving comforter" robot is a heater and air conditioner on top of a mobile base that can autonomously follow you around, gently blowing warm or cold air at you to keep you at a comfortable temperature. Researchers at the University of Maryland's Center for Environmental Energy Engineering designed and built RoCo with the goal of reducing the cost of heating and cooling buildings. The project is funded by the Advanced Research Projects Agency-Energy (ARPA-E).

The RoCo was featured in the Washington Post this summer - to read the article and watch the video, visit go.umd.edu/roco-washpost

Transparent Wood with Futuristic Applications



Featured in the New York Times, Dept. of Materials Science & Engineering Professor, Liangbing Hu and his team have made a block of linden wood transparent, which they say will be useful in fancy building materials and in light-based electronics systems.

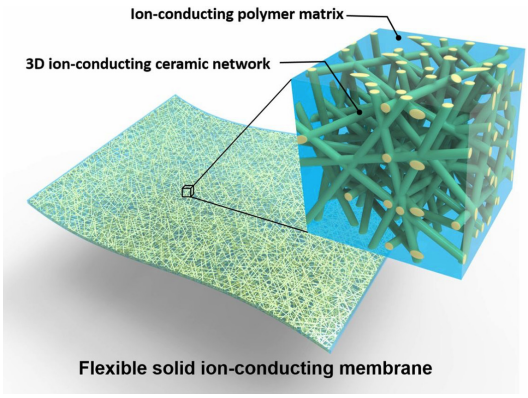
The researchers have removed the molecule in wood—lignin—that makes it rigid and dark in color. They left behind the colorless cellulose cell structures, filled them with epoxy, and came up with a version of the wood that is mostly transparent.

The see-through wood is stronger and a better insulator than glass and more biodegradable than plastic, could one day be used in windows, tables, and other building supplies.

Read the full news article here: go.umd.edu/transparent-wood

Major Advances Toward Safer, Better Li-Ion Batteries

UMERC researchers are rapidly developing safer, higher capacity, and longer lasting lithium batteries for a wide range of applications, from portable electronics such as smart phones, to electric vehicles and beyond. The team of researchers have developed a flexible, solid-state, ion-conducting membrane based on a 3D Li-ion conducting ceramic nanofiber network.



In August, the Department of Energy awarded $1.25M for this project as part of the DOE Vehicle Technologies Office Program-Wide FY16 selections for the development of advanced high-voltage electrolytes and additives, conformable and self-healing solid-state electrolytes, and lithium metal protection.
More information: go.umd.edu/doe-better-batteries.

In June, this research was also published online in the Proceeding of the National Academy of Sciences (PNAS) (go.umd.edu/pnas-battery) and featured in NanotechWeb.org (go.umd.edu/nanotech-battery).

UMD Undergrad Wins Student Paper Competition at ASME Power & Energy Conference

Maira Bruck, an undergraduate Economics major at the University of Maryland, won the student paper competition at the 2016 ASME Power & Energy Conference.

The paper entitled: "A Levelized Cost of Energy (LCOE) Model for Wind Farms that Includes Power Purchase Agreement (PPA) Energy Delivery Limits" develops a new cost model to evaluate the price of electricity from wind energy under a PPA contract. The coauthors on the paper are Navid Goudarzi (post-doctoral researcher in Mechanical Engineering) and Peter Sandborn (Professor, Mechanical Engineering).

Read more here: go.umd.edu/asme-student-paper

ECS Student Chapter Wins Again!

The University of Maryland Student Chapter of the Electrochemical Society (ECS) has received an ECS Student Chapter Award for the fourth consecutive year! The chapter won the ECS's inaugural Outstanding Student Chapter Award in 2013, and the Student Chapter of Excellence Award in 2014, 2015, and again this year. UMD is the only student chapter to receive consistent recognition since the creation of the ECS award.

More information here: go.umd.edu/ecs-umd-students

UMERC Faculty Corner

Help us name the UMERC eNewsletter!

This academic year, our eNewsletter will be delivered to your inbox monthly and we want your help in naming it!

Click here to cast your vote: go.umd.edu/umerc-survey

UMERC Faculty Profiles

Do you have updates for your UMERC Faculty profile? Perhaps a new research webpage? Email any updates to Amanda McCrum, UMERC's Research Coordinator at amccrum@umd.edu. Updates to your profile and research interests help us promote your work and send you appropriate funding opportunity announcements.

Also contact us if you are interested in being added to the UMERC Faculty membership!

UMERC Faculty Lunches

During the Fall and Spring 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 this Fall semester's UMERC faculty lunches, please contact Amanda (amccrum@umd.edu).

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