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2024



PennState
Materials Research
Institute

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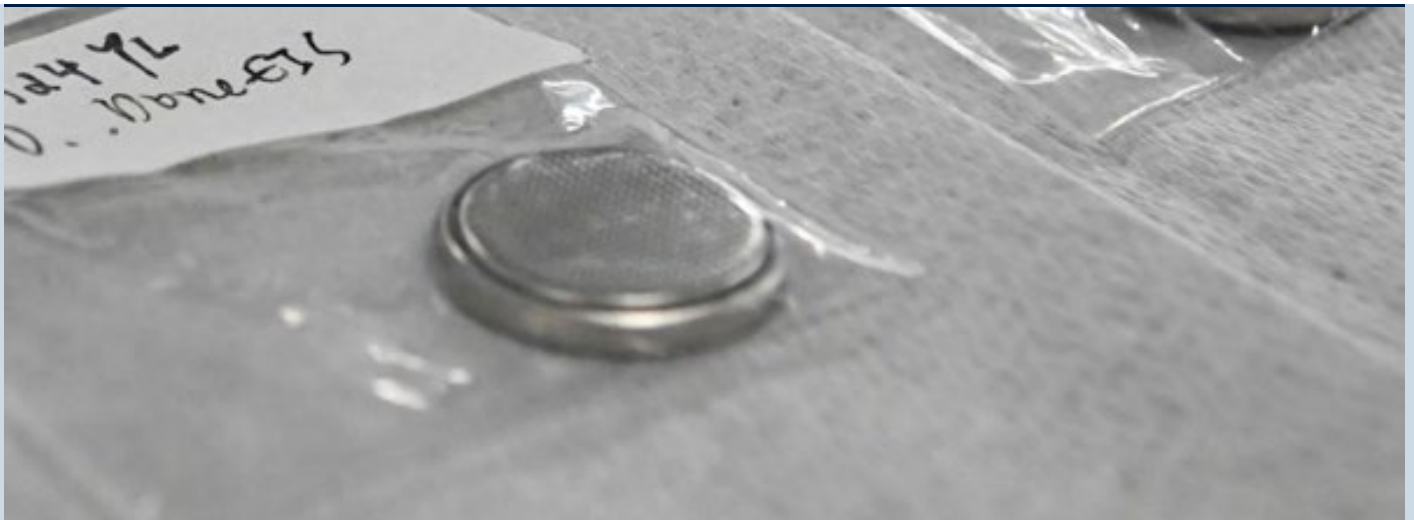
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FEATURED STORY



MAKING RECHARGEABLE BATTERIES

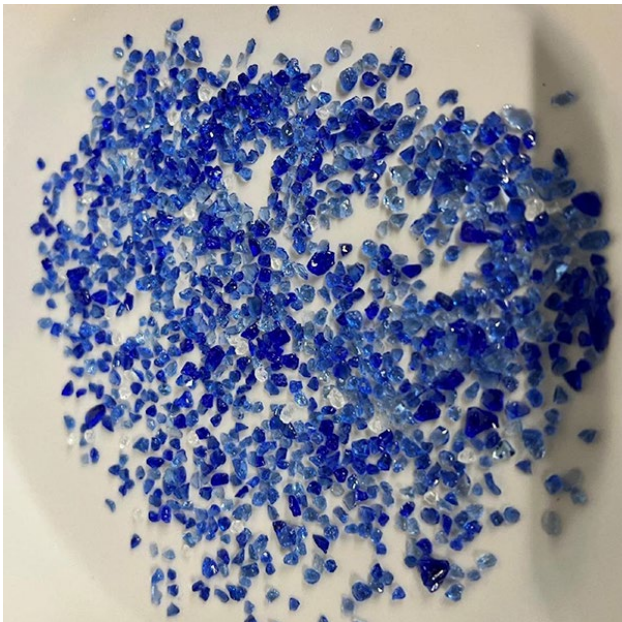
more sustainable with fully recyclable components



LEAD: PROFESSOR ENRIQUE GOMEZ

Current battery recycling methods focus on the limited recovery of metals contained within the cathodes, while everything else goes to waste. To more easily separate the core battery components from the other metal components in a coin cell battery, researchers inserted two polymer layers at the interfaces between the electrode and the electrolyte prior to the start of the recycling process. Read more about their findings which were published in ACS Energy Letters.

[READ THE ARTICLE](#)



[Message in a bottle: Combining mixed-color glass an option to](#)



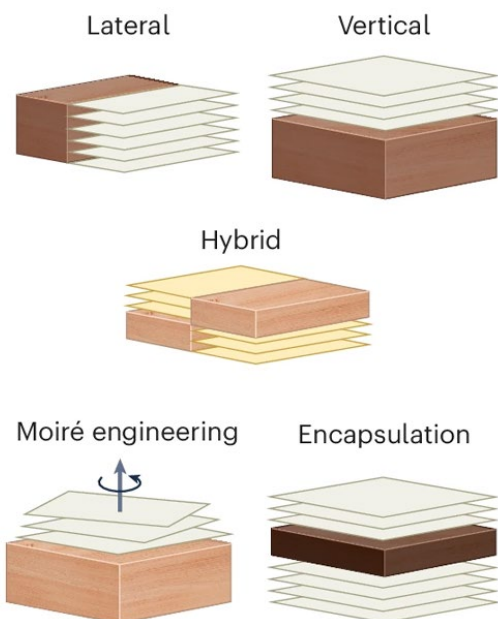
[Biodegradable electronics may advance with ability to control](#)

boost recycling

LEAD: PROF. JOHN MAURO

Used glass bottles are crushed into small pieces called cullet before being remelted and remade. A new study found glass from post-consumer bottles of different colors can be safely melted together in the recycling process, which could potentially lead to more bottles being recycled.

[Read More](#)



[Advanced materials research poised to revolutionize technology and society](#)

LEAD: PROF. SUSAN SINNOTT

LEAD: PROF. MAURICIO TERRONES

Materials researchers are pioneering the creation of heterostructures built with TMCs and TMDs. In this context, heterostructures refer to precisely layered combinations of TMCs and TMDs designed to synergistically enhance their properties. This approach aims to engineer materials with unique properties that offer practical benefits across multiple sectors beyond what individual materials offer.

[Read More](#)

dissolve rate

LEAD: ASSOC. PROF. HUANYU (LARRY) CHENG

Researchers have developed the ability to control the dissolve rate of these biodegradable electronics by experimenting with dissolvable elements, like inorganic fillers and polymers, that encapsulate the device.

[Read More](#)



[Nichole Wonderling awarded prestigious fellowship](#)

Nichole Wonderling, assistant research professor and X-ray scattering manager at the Materials Research Institute's (MRI) Materials Characterization Lab (MCL), has been named a fellow by the International Centre for Diffraction Data (ICDD). The fellowship recognizes exceptional contributions to the field of materials characterization and dedicated service to the ICDD community.

[Read More](#)

UIDP Penn State 2024

Impact of Global Change on University-Industry Partnerships

UIDP's fall conference brings together thought leaders and on-the-ground practitioners with the savvy to drive new partnerships. Meet partnership connections, explore new approaches to shared challenges, and tackle contemporary issues in cross-sector research partnership.



Dave Fecko
Penn State

Michelle Gallagher
Medtronic

Jerry Kolbe
Murata

Andrew Read
Penn State

Josh Stapleton
Penn State

UIDP Penn State
Sept. 9-11, 2024

The Institute Model for Industry Engagement



[DETAILS & REGISTRATION](#)

CONVERGENCE of MATERIALS, DATA, MANUFACTURING and the HUMAN DIMENSION



October 29-30, 2024
MaterialsDay
2 0 2 4

October 29 - 30, 2024

University Park, PA

Convergence of Materials, Data, Manufacturing, and the Human Dimension

Block off Oct. 29-30 on your calendar for the 2024 Materials Day, Penn State's marquee event for the materials research community. This year's theme is **"Convergence of Materials, Data, Manufacturing, and the Human Dimension."** With this theme in mind, the event will feature **keynote speakers, breakout sessions, graduate student poster**

ADD TO CALENDAR



sessions, industry-sponsored **tabletops**, lunch, and several **networking opportunities**.

Keynote Talks:

"Manufacturing innovation for America's clean energy future"

"Achieving manufacturing resilience"

"(Re)Focusing on the human dimension: How immersive technologies and human-centered design can advance materials research"

[AGENDA, KEYNOTE DETAILS, & SPONSORSHIP INFORMATION](#)

MATERIALS DAY

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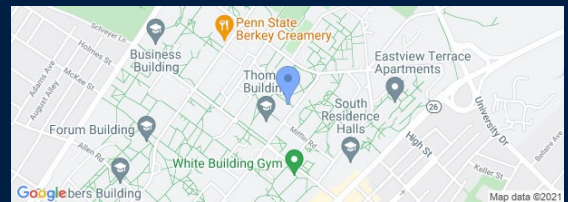
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