ASU Economic Development
Arizona State University

Innovation Zones at ASU

Battery technology

Groundbreaking research to extend battery life and improve safety

- At ASU, researchers are developing new materials for high conductivity solid-state electrolytes and solid-state batteries, lithium-sulfur batteries, and high energy and power density batteries.
- Researchers conduct evaluation of lithium-ion batteries under wide-temperature range and repeated mechanical flexing/bending.
- Researchers work to develop a smart way to utilize the phenomenon to extend the life of lithium-metal batteries while maintaining their high energy density.

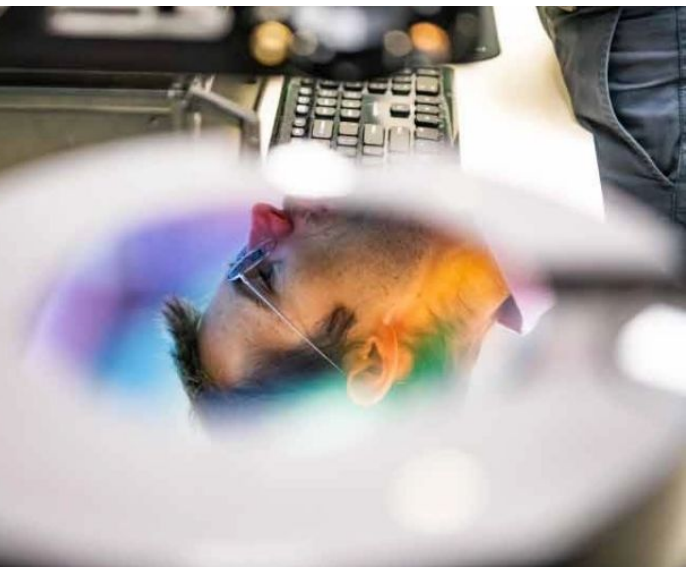
ASU core facilities

- **John M. Cowley Center for High-Resolution Electron Microscopy.**
- **Life Science Electron Microscopy.**
- **Goldwater Materials Science Facility.**
- **Metals, Environmental and Terrestrial Analytical Laboratory.**

The ASU advantage

TEXEL Energy Storage, a battery technology company, and ASU have signed a cooperation agreement with the goal of bringing forth new, commercialized battery technology in the United States.

"The new battery technology is a huge step forward towards a fossil free future, both regarding cost effectiveness and the fact that the technology is 100% circular" says Lars Jacobsson, CEO of TEXEL.



MacroTechnology Works

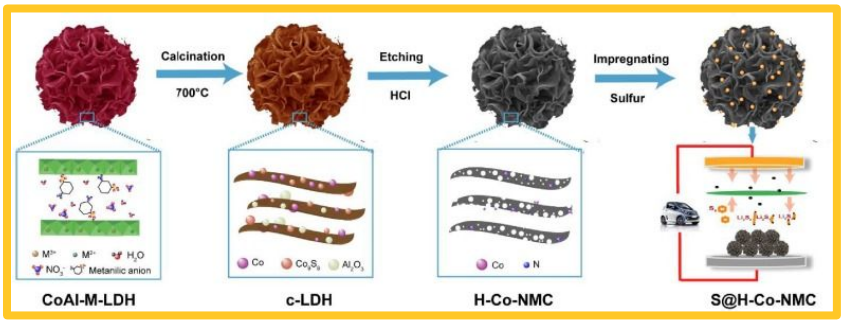
This state-of-the-art semiconductor processing facility is home to the **Advanced Electronics and Photonics (AEP)** core facility for materials and device fabrication. This research facility provides access to clean rooms, wet labs, dry labs, high bay space and office accommodations for ASU to advance research in partnership with private industry.

In cooperation with TEXEL Energy Storage to commercialize new battery technology in the U.S.

Teams of skilled researchers and professors focused on battery technology innovation

ASU battery research

- Next generation Si, Ge and Sn anodes.
- Mechanics modeling.
- Electrochemical surface science.
- Advanced carbon materials.
- Flexible and stretchable batteries.
- Solid-state electrolytes.
- Electrolytes for Mg and Ca batteries.
- Ceramic separators.
- Novel liquid and plastic electrolytes.



ASU select intellectual property

- Method for Preparing Advanced Lithium-Ion Battery Composite Cathodes.
- A New Class of Fast Alkali Ion Conductor: Inorganic Plastic Crystals.
- Framework Substituted Clathrates for Lithium-Ion Battery Anodes.
- Low Operating Temperature Na-Fe Redox Battery for High Efficiency, Low-Cost Energy Storage.
- Cathodic Aluminum Batteries for Grid-Scale Energy Storage Solutions.
- Method to Synthesize Conformal Thin Films of $Li_7La_3Zr_2O_{12}$ on Surfaces and Three-Dimensional Substrates.
- Calcium Salt for High-Performance Electrolytes in Rechargeable Calcium Batteries.
- Chelating Ionic Liquid Family for Magnesium Battery.
- 3D-Soft Electrode for Li-Chalcogen Batteries.

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oed.asu.edu

To learn more:

oed@asu.edu 480-727-6347

#1 in the U.S. for innovation

ASU ahead of MIT and Stanford

– U.S. News & World Report, 7 years, 2016–2022

BEST COLLEGES U.S.News & World Report MOST INNOVATIVE 2022