



CEPS
IUCRC



NSF Industry-University Collaborative Research Center (IUCRC) Center for Solid-State Electric Power Storage (CEPS)

Established: 2021

Overview of research

Focused on next-generation energy storage and green technologies, CEPS (an NSF IUCRC) is developing cutting-edge solutions for industry members and accelerating the transition of new technologies to the markets. Conceived by the faculty from three universities (South Dakota Mines, Northeastern, and Syracuse) and approved by the Industry Advisory Board (IAB) members, selected projects are executed within the five thrust areas of the Center:

1. Materials Engineering

2. Manufacturing technology

3. Characterization and analysis

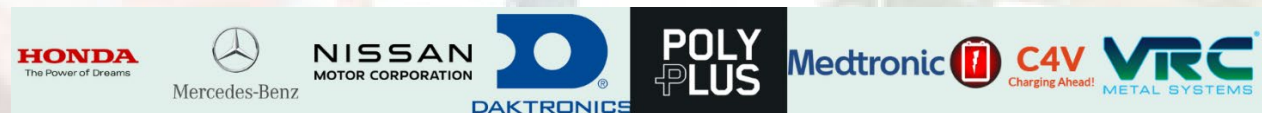
4. System design, integration, & AI

5. Critical metals & battery recycling

These projects may involve materials engineering for batteries (e.g., lithium-ion, sodium-ion, or nickel-zinc), battery manufacturing and system integration, advanced characterization and multiscale analysis, and lithium-ion battery recycling or “green” lithium mining.

Short-term benefits to the OEM

- Networking with current and prospective industry advisory board (IAB) members, such as:



- Diverse expertise from a large group of faculty and students for seeking new ideas and solving challenges at low cost
- Access to the NSF funding (\$55K/year) for student interns for solving specific challenges and generation of exclusive IP
- Low indirect cost (10%) for immediate access to cutting-edge facilities at three universities (South Dakota Mines, Northeastern, and Syracuse) and free access to federal DOE synchrotron facilities (Brookhaven and Stanford) for advanced morphological and structural characterization of materials and systems
- Available services to industry members for solving specific challenges

Long-term benefits to the OEM

- Access to a steady stream of qualified Ph.D., M.S., and B.S. students as future employees
- Access to large supplementary grants under the auspices of NSF reserved for IUCRC recipients (SBIR/STTR and “Partnerships for Innovation”)
- Development of novel high-risk and high-reward projects within the five thrust areas
- Leveraging diverse research fields for an accelerated transition of technology to the market
- Joint IP development (royalty-free licensing to CEPS industry members) and higher Return on Investment (RoI) when funded jointly

Conclusion and offer

The NSF IUCRC management team <https://www.greenceps.com/ceps-management> would be excited to initiate meaningful discussions with your management team regarding joint interests and the opportunity for our Center to benefit your corporate needs.

Contact Information

Director Dr. Alla White Smirnova: 860-428-0446 (call or text); Alevtina.Smirnova@sdsmt.edu
Assistant Director: Dr. Fan Zheng: fan.zheng@sdsmt.edu
CEPS Managing Director: Dr. Serge Pann: s.pann@northeastern.edu
Site Director at Syracuse University: Dr. Quinn Qiao quqiao@syr.edu

