



Center for Research in Extreme Batteries (CREB)

BACKGROUND

The Army, with its significant use of technology on the battlefield, relies on batteries that are often ponderous and potentially dangerous. Army operations require that batteries are placed in extreme thermal and mechanical conditions that can be detrimental to the batteries and potentially harmful to the Soldier. While significant research is being conducted on improving the energy density of batteries to reduce weight, there has been little focus on batteries used in extreme environments. This has created the opportunity for the creation of the Center for Research in Extreme Batteries (CREB); a research and development center designed to foster and accelerate collaborative research in advanced battery materials, technologies, and characterization techniques for batteries for extreme performance, environments and applications.

PARTICIPANTS

Open to national and defense labs, universities, and industry

CONCEPT OF OPERATION

The CREB is an open participation center where nominal industry-paid fees are used to provide seed funding to collaborators on topics chosen by an Industrial Advisory Board and the CREB steering committee.



COLLABORATIVE FOCUS

- Batteries used in extreme applications (flex electronics, munitions)
- Batteries with extreme properties (high energy, power density, extreme temps)
- Batteries performing in extreme environments (space, in vitro, oil wells)

BENEFITS

- Access to unique research solutions for defense, space, biomedical applications
- More effectively brings multiple disciplines together to engage in collaborative projects
- Access to people, unique research facilities and unique prototyping/manufacturing facilities
- Exposure to new ideas and collaborators
- Ability to formulate joint proposals and publications
- Early access to pre-competitive research results
- Technology transition pathways available
- Possibility for use of IP generated by CREB for non proprietary use for CREM members

UNIQUE FACILITIES

- New Dry Room
 - With airlock control on access
 - Chemical hoods for moisture-exclusion synthesis
 - Dew point: -40 °C
- X-ray Photoelectron Spectroscopy
- Class 100/10 Cleanroom
- In situ Echem AFM/Raman, XRD, TEM, IR
- Spin air gun
- Wet lab adjoining dry room

POINT OF CONTACT

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