



S&T Campaign: Materials Research Energy and Power

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Open Campus

- The U.S. Army Research Laboratory's (ARL) Open Campus initiative enables ARL to be a "front door" to engage academia, other Government agencies, industry and non-traditional innovators in forward-reaching research in strategically important areas.
- The Open Campus initiative is opening up select segments of our extended campus network, with a pilot program at ARL's Adelphi Laboratory Center in Adelphi, Maryland.
- The Open Campus will accommodate both U.S. citizens and foreign national researchers who come to ARL to collaborate in research areas of mutual interest.

Mechanisms for Collaboration

- Cooperative Research and Development Agreement (CRADA)
- Cooperative Agreement (CA)
- Educational Partnership Agreements (EPAs)
- Postdoctoral Fellows Program
- Faculty Appointments

The ARL Research Enterprise

ARL is the Army's corporate research laboratory and is dedicated to the generation of innovative science, technology and analyses to enable full spectrum operations in today's Army into the future.

CREB Focus

- **Material Sciences:** basic and applied research focused on gaining a fundamental understanding of structural, electronic, photonic, and energy materials and devices.
- **Sciences for Maneuver:** basic and applied research focused on gaining a fundamental understanding of advanced mobility systems and their supporting architectures, including decision support sciences, intelligent tactical systems research, and high efficiency energy generation, storage and distribution.

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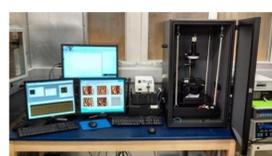
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Additional Information:

<http://www.arl.army.mil/www/default.cfm?page=2357>.

<http://www.arl.army.mil/opencampus/>

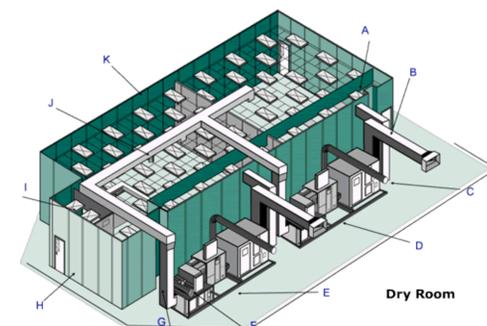
Unique facilities for Batteries



In-Situ AFM (dryroom)



In-Situ AFM / Raman (drybox)



Dry Room

Current Capabilities

- 500 sq ft Dry Room (4-6 researchers)
- Clean room for nano-fabrication
- Organic/inorganic synthesis
- Bio-templated materials
- Nano structured materials
- Synthesis/fabrication of button cells

Instrumentation:

- In-situ: Atomic/Electrical Force Microscopy (AFM/EFM)
- In-situ: Electrochemical AFM with confocal Raman microscope
- Scanning Electron Microscopy
- GC/MS, BET, XRD, TGA

Planned Capabilities

- 2000 sq ft Dry Room (15-18 researchers)
- Defect, life cycle & failure mode analysis (under load and post testing)
- Expanded materials synthesis / cell fabrication
- Bio engineered materials

Instrumentation:

- Transmission Electron Microscopy
- Nuclear Magnetic Resonance

Center for Research in Extreme Batteries

