- **Energy storage systems** for electrification of vehicles, next generation of batteries, supercapacitors & fuel cells, wireless chargers, and battery state of charge estimators.

- **Alternative energy sources** including: solar, wind, geothermal, ocean-tidal waves, and nuclear energy.

- **Real-time non-destructive techniques** for evaluation of materials and devices, including in-situ x-ray and neutron diffraction, spectroelectrochemistry, magneto-inductive defectometry, photo thermal imaging.

- **Nano materials and applications**, including quantum dots, 2-D nanosheets, magnetic hypothermia, x-ray detectors, gas sensors, and solid state micro batteries.