



U.S. ARMY
RDECOM

Prognostics and Diagnostics Laboratory



open
campus

S&T Campaign: Sciences for Maneuver *Logistics and Sustainment*

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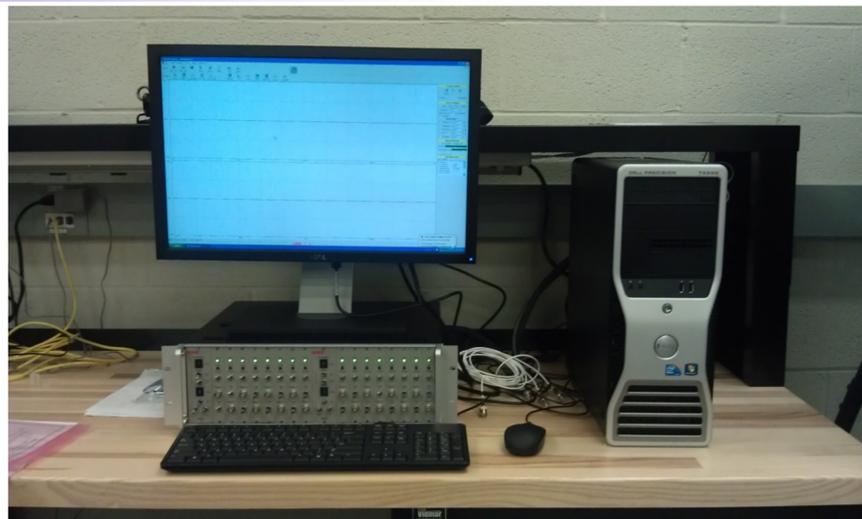
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Research Facilities

- Supports fundamental research for the Army Condition-based Maintenance Enterprise
- Supports prognostics health management research activities such as structural health monitoring and life prognosis; propulsion health monitoring; machinery and dynamic component diagnostics; physics, materials, electronics, advanced sensing, and data acquisition hardware

Equipment Available

- **Acoustic Emission System**
 - 16-channel, low frequency, ultrasonic conditioning unit
 - Frequency Range: 20kHz to 2.3 MHz
 - Detect cracks and crack locations in structural components, fiber breaks and delaminations in composites
- **Lamb Wave Diagnostics**
 - Acellent's ScanSentry and ScanGenie II diagnostic unit generates and captures signals from piezoelectric sensors and actuators using Lamb waves
 - Able to actively interrogate metallic and composite structures in-plane and out-of-plane
- **High-Speed Optical Sensing**
 - High speed interrogator capable of monitoring and analyzing FBG sensors with up to 4 channels simultaneously
 - Up to 500 kHz for a single channel of 100 kHz on four simultaneous channels
 - Sensitivity of 0.02 μe for periodic vibrations
- **Impact Modal Analysis**
 - Adapts to FFT analyzers for structural behavior testing
 - 0–5,000 lb/ft impact loading
 - x1, x10, x100 gain signal conditioning



Acoustic Emission System



Lamb Wave Diagnostics



High Speed Optical Sensing



Impact Modal Analysis