Program Impacts

The Laboratory for Systems Integrity and Reliability (LASIR) is a proving grounds for creating and scaling up technologies for application in the energy, security, and manufacturing sectors. Our goal is to create intelligent infrastructure of the future that is more safe, resilient, and sustainable. For example, our measurement and analytical methods are used by manufacturers across the automobile and aerospace industry to reduce costs and improve the reliability of their products. In addition, the sensing systems we have invented have been deployed to support the nation’s key military platforms including the Stryker combat vehicle and CH-53 heavy-lift helicopter. And graduate and undergraduate students are at the center of the LASIR learning community leading to unique career opportunities. From our work to develop more efficient hybrid vehicles to the monitoring systems we are developing for U.S. nuclear power plants, our research aims to optimize the performance and reliability of the systems we all rely on in our daily lives.

Program Statistics

- 150 programs completed for ~$50M
- Over 500 technical papers published
- 130 graduate students trained
- 35 undergraduate interns mentored
- 30 industry short courses taught
- A dozen graduate student fellowships awarded
- 16 invention disclosures/patents filed
- National level research awards received

State of the Art Instrumentation

LASIR houses over $10M in high-end instrumentation including 3D high-speed scanning velocimeter and digital image correlation systems, an electrohydraulic vehicle simulator, material and environmental test machines, a high velocity impact tower, a wind tunnel, and 100’s of channels of sensing and data acquisition hardware.

Technology Showcase

LASIR reaches out to K-12, industry, and the community through an interactive exhibit with hands-on demonstrations.

Technical Approach

LASIR researchers from across the School of Engineering collaborate to perform and understand one-of-a-kind experiments on full-scale test beds. For example, by combining sensing and simulation tools, we are discovering why and how advanced composite materials fail.