

**S&T Campaign: Assessment and Analysis**  
*Developing Tools, Techniques, and Methodologies*  
**Cyber SLV**

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## Objectives

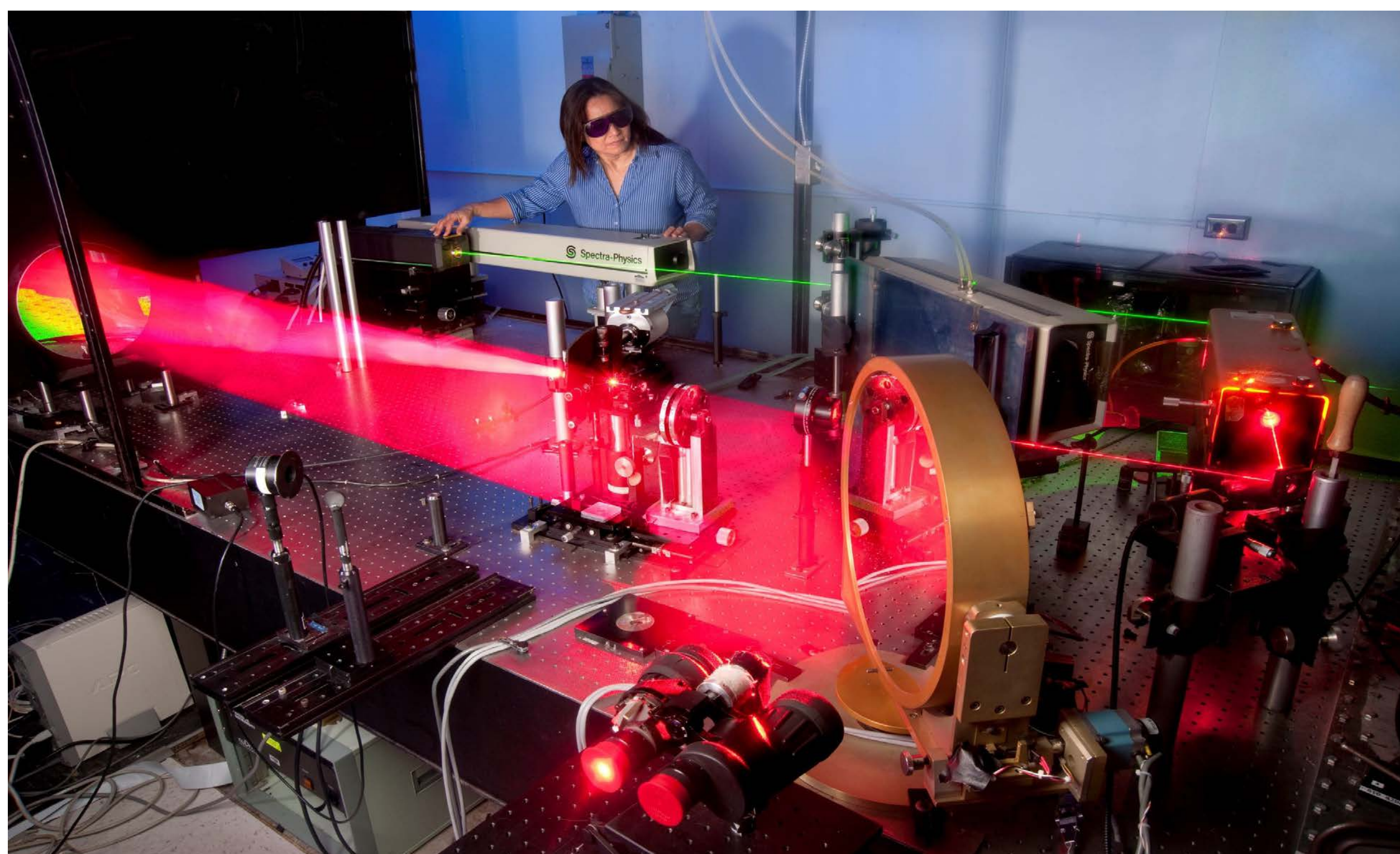
- To develop improved measurement and characterization capabilities, new modeling & simulation methods, or novel device design/concepts leading to improved laser- hardening of Army optical and electro-optical systems



**Mid-Energy (8 kW) Laser Laboratory**

## Challenges

- Advanced optical systems require innovative laser-hardening designs that will meet the need for protection from multiple laser threats while not degrading device performance
- The evolving battlefield laser threat will require the development of novel hardening designs, new vulnerability analysis methods, and state-of-the-art modeling & simulation programs



**Fourier Transform Range Simulator**

## ARL Facilities and Capabilities Available to Support Collaborative Research

- Several indoor laser stations with a variety of low- and mid-energy lasers operating in the visible to far-infrared wavelength bands
- 1.8 km outdoor laser range facility
- Multiple laser threat emulators
- Several state-of-the-art commercial software packages for modeling & simulation of macro- and micro-scale optical and mechanical components
- Custom in-house predictive laser vulnerability computer models



**Threat Emulator Pump Laser**

## Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

Expertise in nonlinear effects of ultra-short, high-power laser pulses on media within electro-optical systems

Simulation software for characterizing the propagation properties of ultra-short laser pulses through components found within electro-optical systems