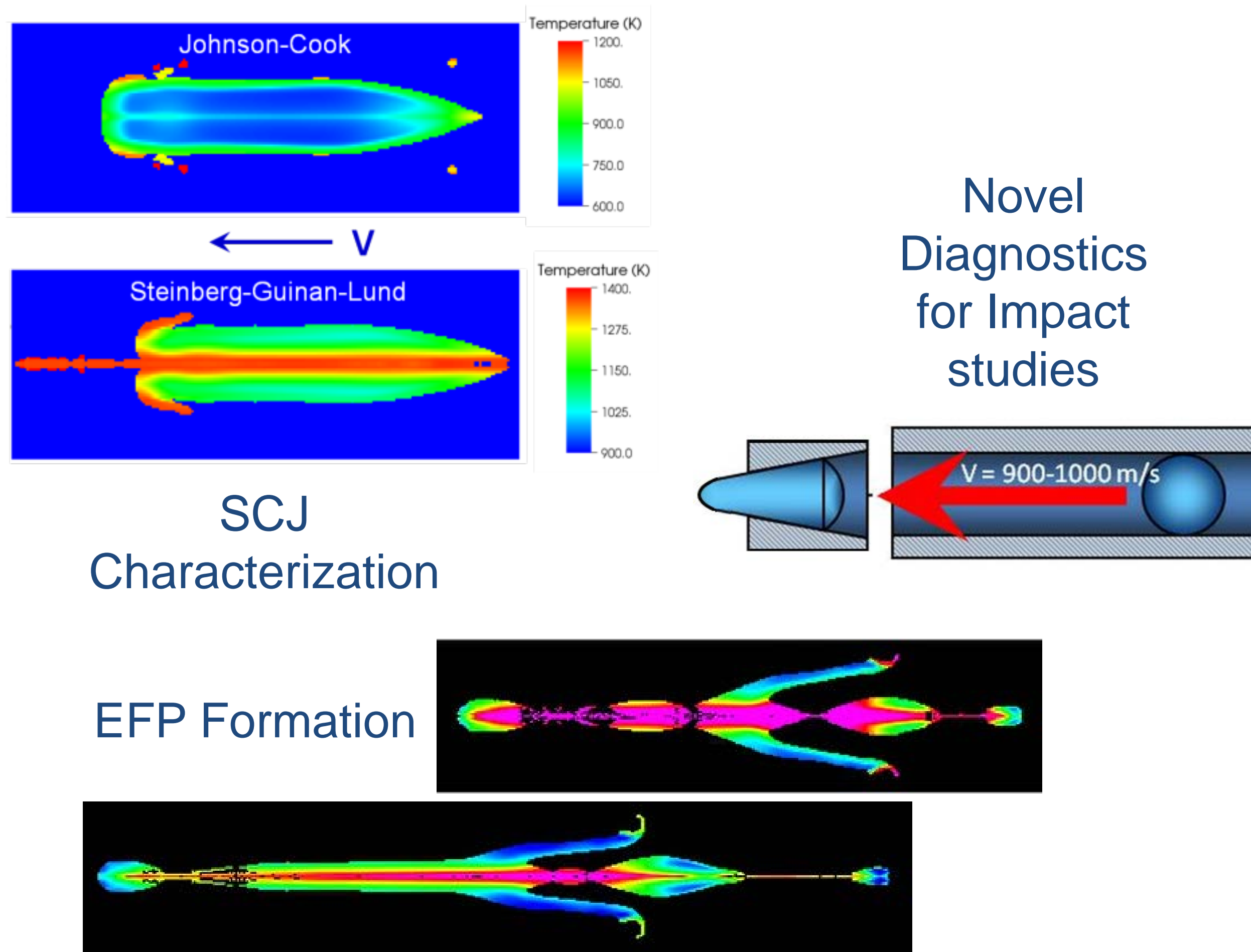


S&T Campaign: Sciences for Lethality and Protection
Kinetic Protection
Vehicle Protection

Casey Uhlig
(410) 278-3997
willard.c.uhlig.civ@mail.mil

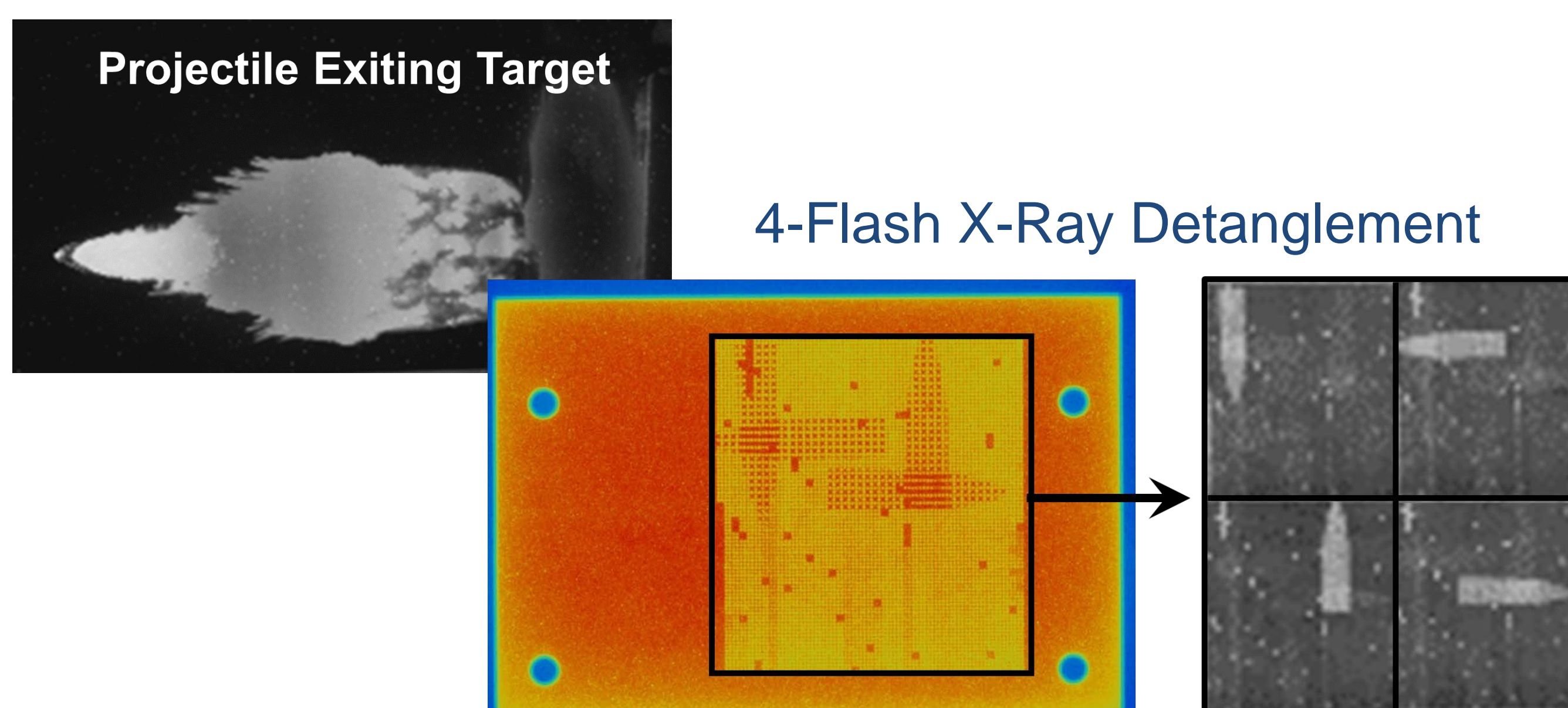
Research Objective

- Conduct innovative fundamental research in areas of applied physics essential to state-of-the-art protection technologies
- Accurately determine in-flight state of matter of various threats and armor materials to support research in electromagnetism and shock physics code validation



ARL Facilities and Capabilities Available to Support Collaborative Research

- Developed novel magnetic diffusion analysis technique and mathematical model for obtaining the temperature and electrical conductivity of threats over a broad dynamic range
- High-speed optical emission spectroscopy
- High-speed video, portable flash X-ray, experimental facilities for high explosives

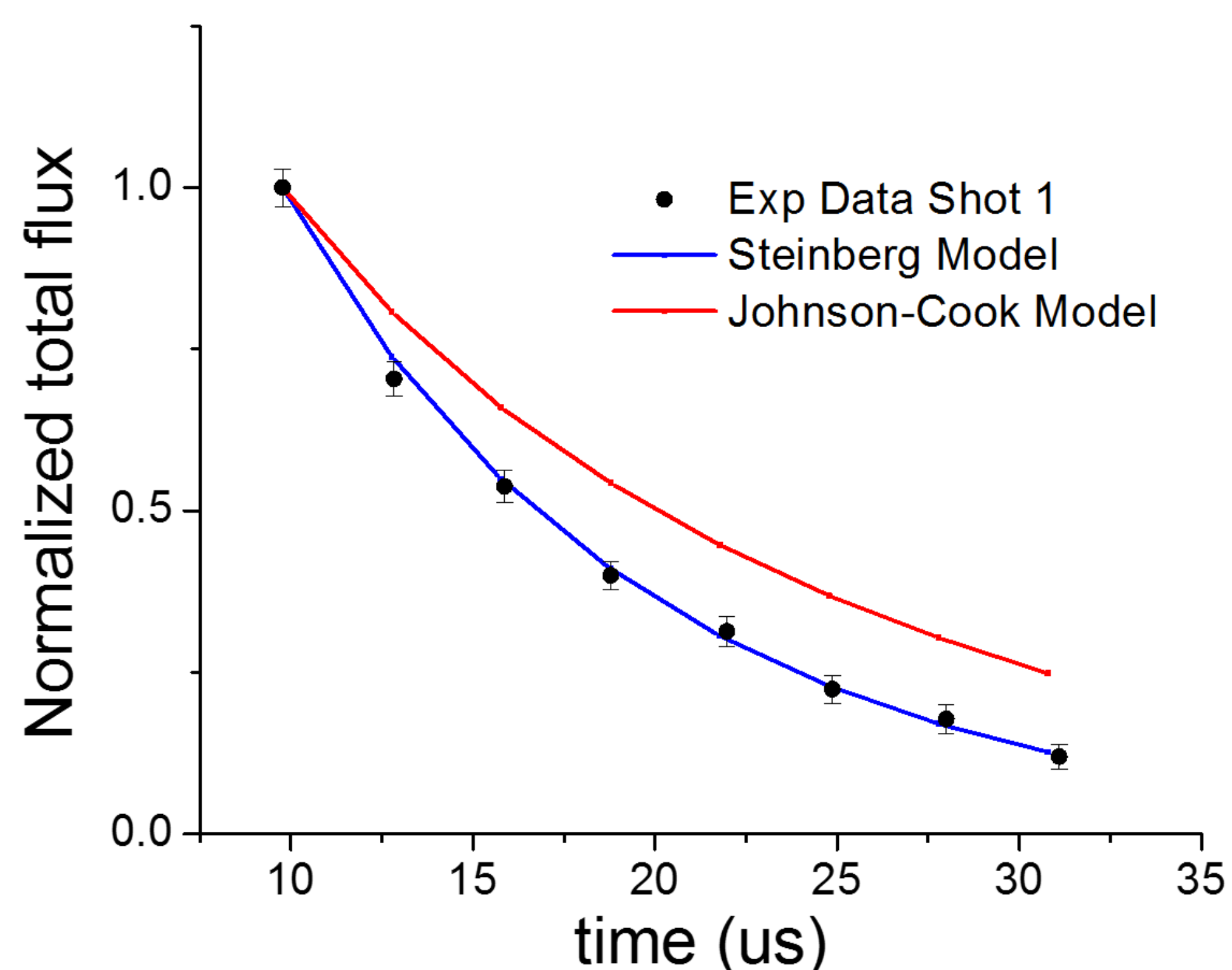


Complementary Expertise / Facilities / Capabilities Sought in Collaboration

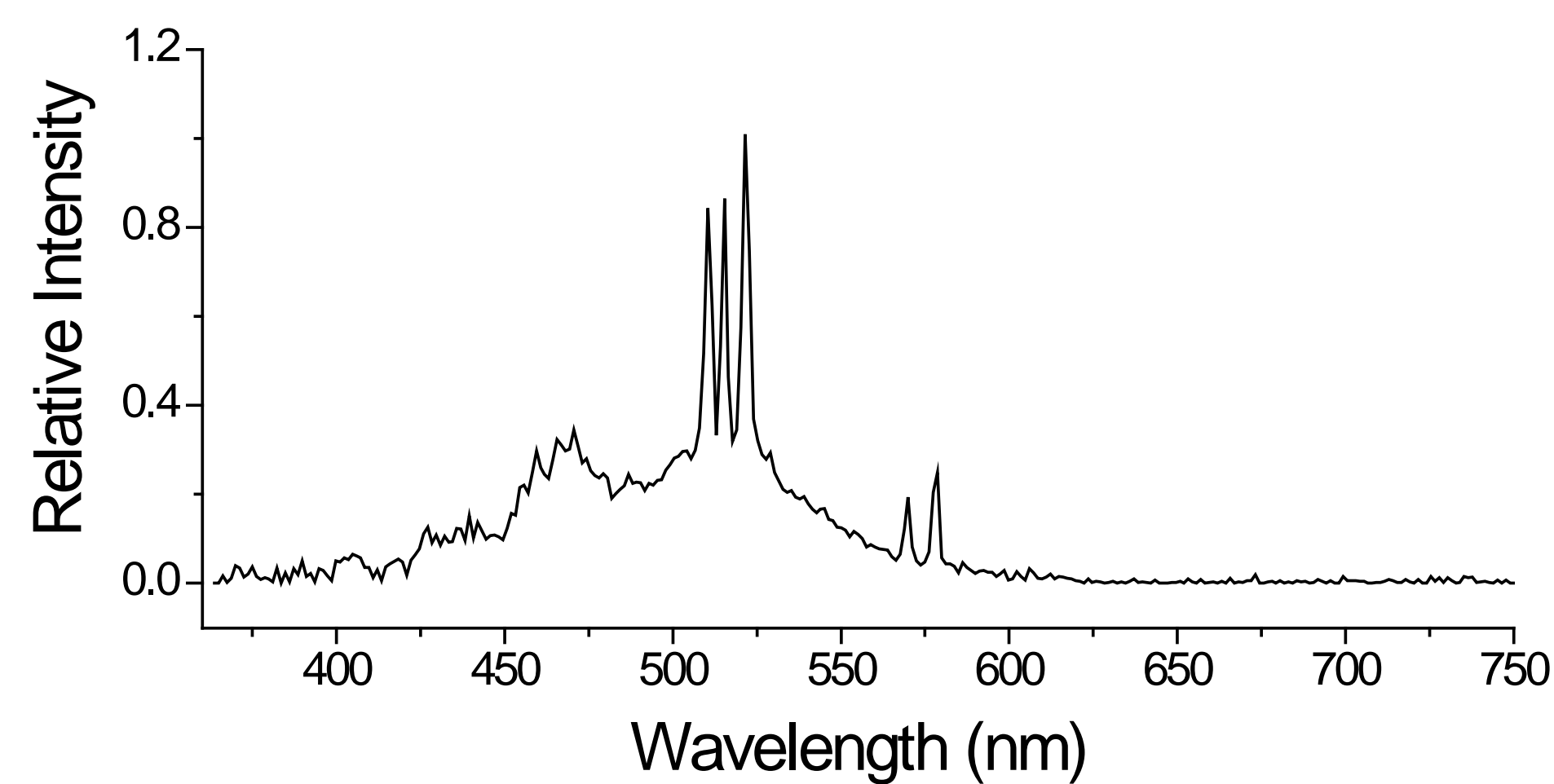
- Expertise in shock demagnetization and magnetometry
- High flux, long pulse flash X-ray design expertise or capabilities
- Expertise or advancements in X-ray scintillator screen technology

Challenges

- Enhance, develop, and create state-of-the-art techniques for measurements of material response in extreme environments over large dynamic ranges
- High-speed capture of data that enables pushing the envelope of material (threat or target) characterization



Direct comparison of shock physics code results to experimental data



High-speed spectroscopy of shock-heated air plasma