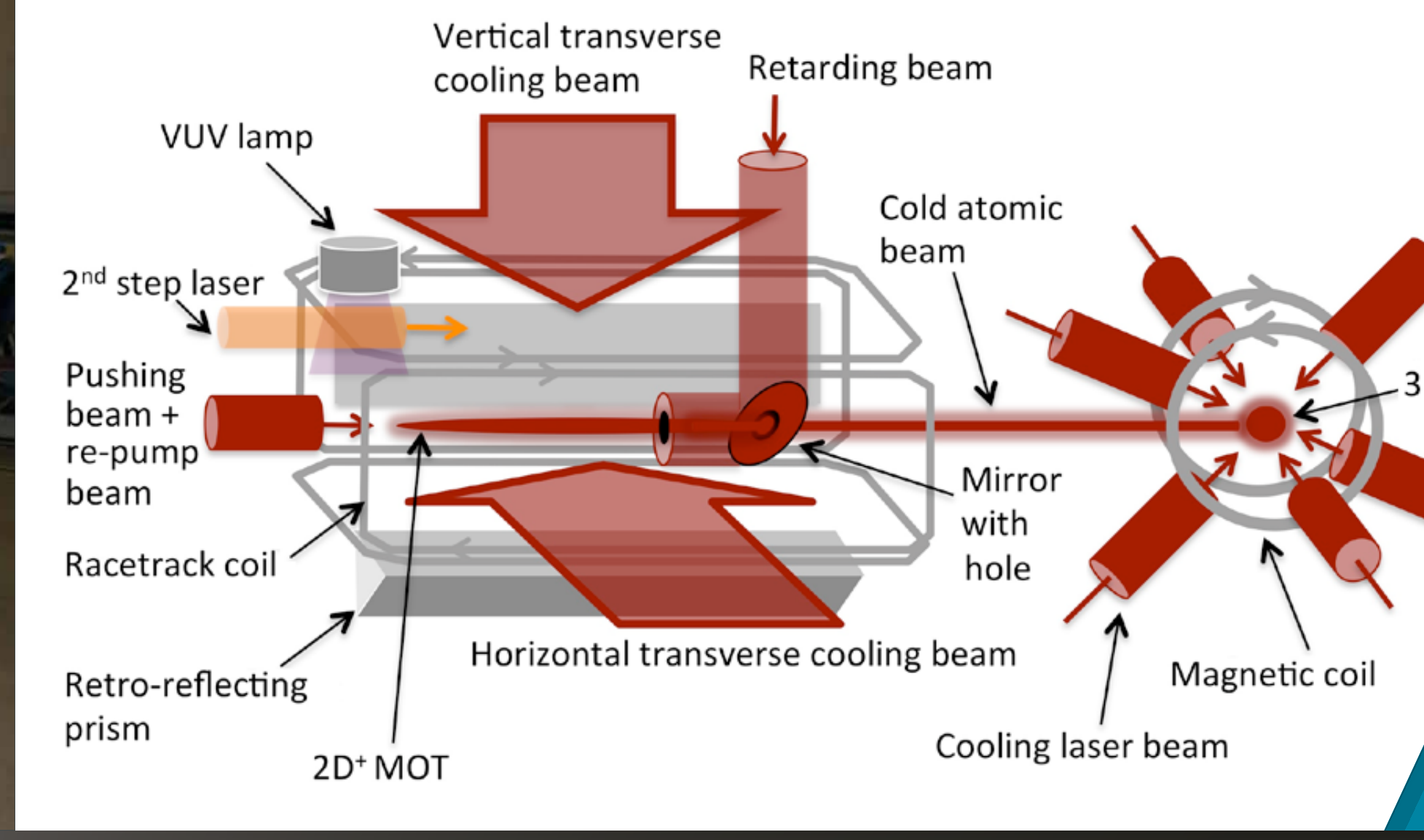
PROLIFERATION DETECTION RESEARCH AND DEVELOPMENT



Nuclear Weaponization & Material Production Detection

Nanoporous Framework Materials for Separation and Adsorption of Gaseous Species

High Explosives Characterization Experiments | Micro-Scale Automation Platform

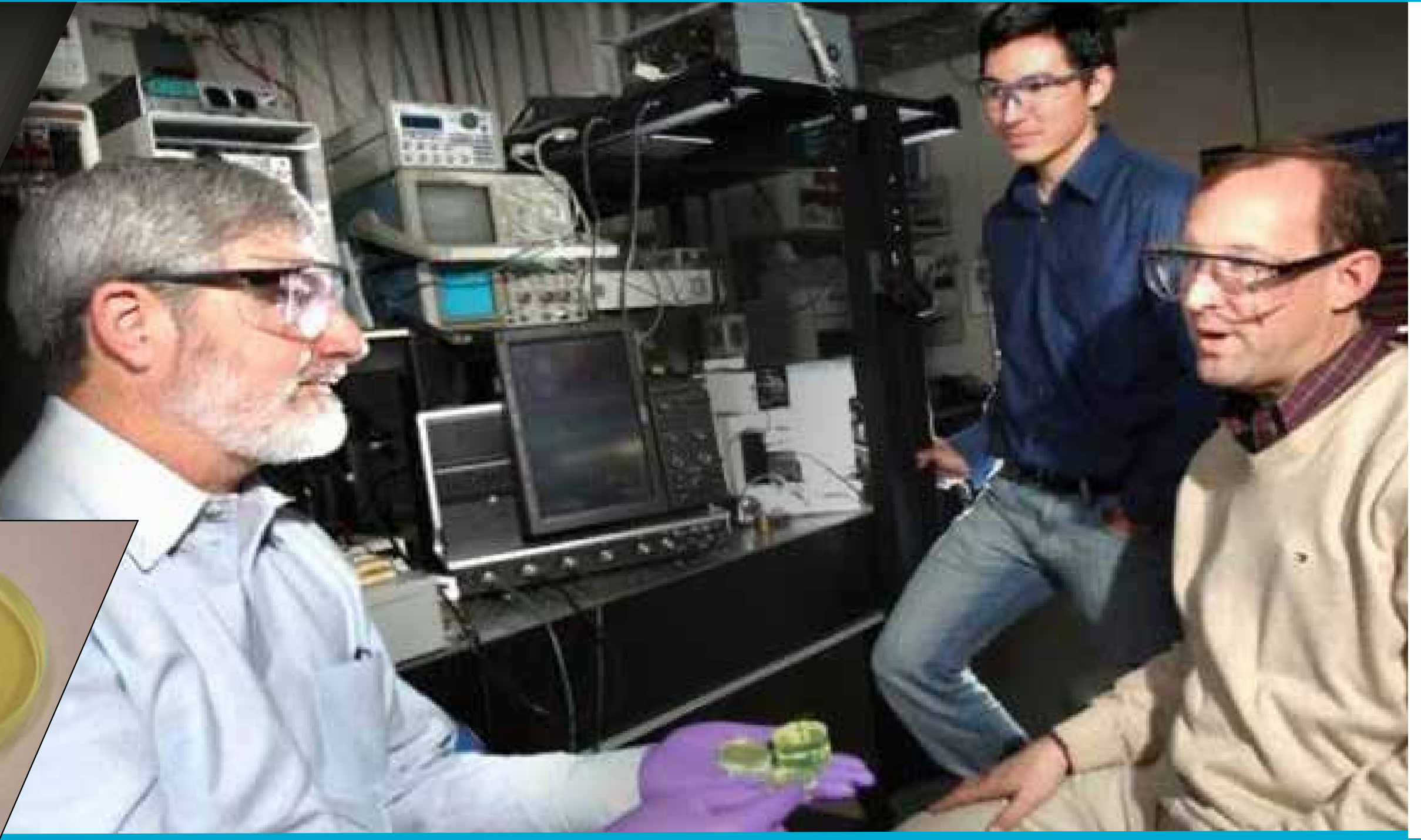
Research in Enrichment Detection and Characterization Technology (REDACT) | Detection of Conversion Facilities

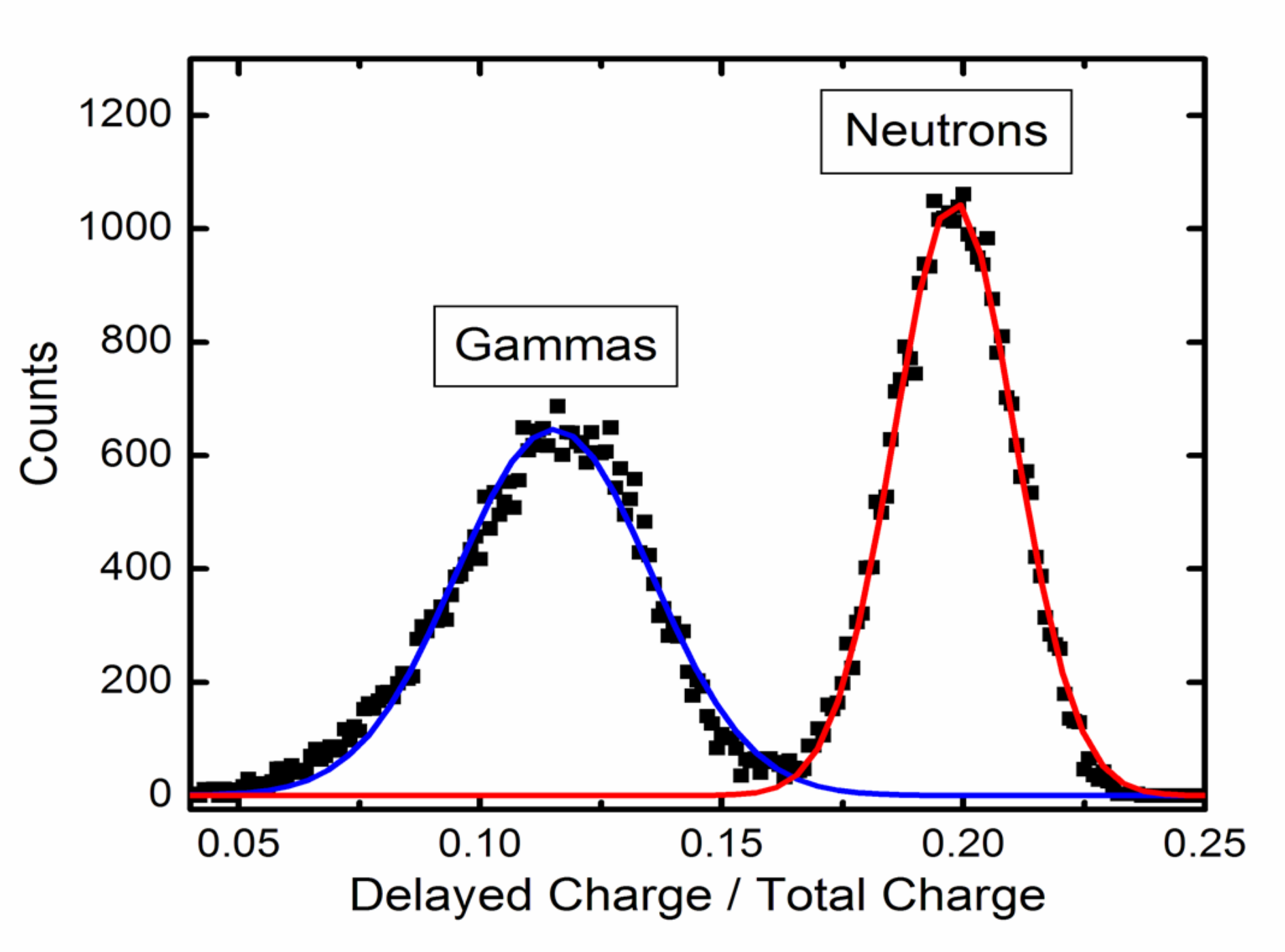
Signatures for Advanced Nuclear Weapons Designs | High Precision Noble Gas DetectionCharacterization of High-Explosives Events

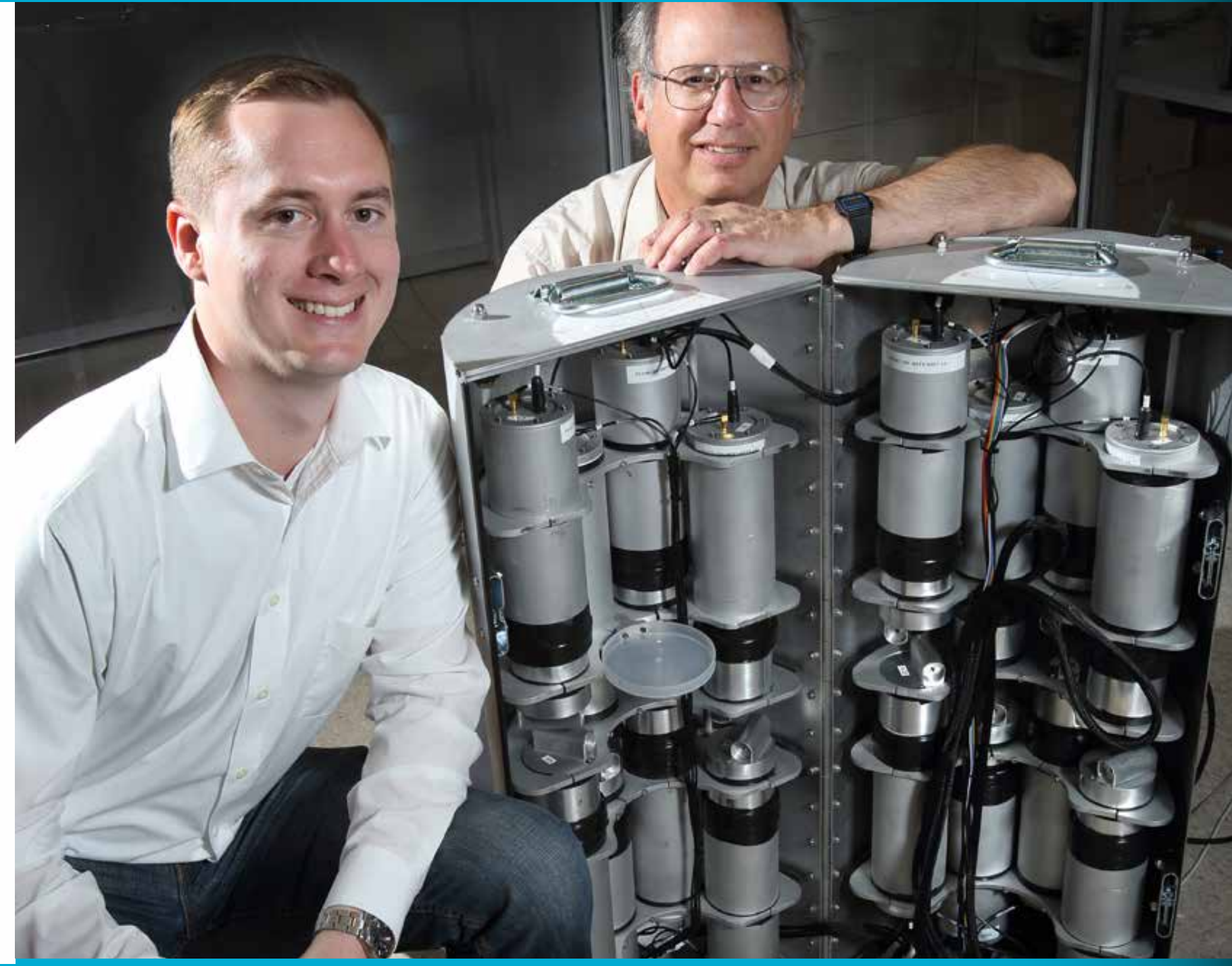
Above left: 'Harvester' 'tastes' the atmosphere with particulate sampling pods to gather information, and has successfully completed test and evaluation on a UAV platform. Above right: Schematic of atom trap trace analysis system

Right: picture of advanced plastic scintillators and graph showing gamma-neutron discrimination

Far right: MINER system consisting of sixteen liquid scintillator detector cells configured in a height-staggered cylindrical geometry.







Nuclear Weapons & Materials Security

Warhead Monitoring Planning and Execution | Science Guided Scintillator Discovery | Directional Spectrometer Software

Gamma Detector Response and Analysis Software Development | WMS Technology Roadmap | Imaging Neutron Generator

Information Barriers for Imaging | Advanced Tools for Maintaining Continuity of Knowledge

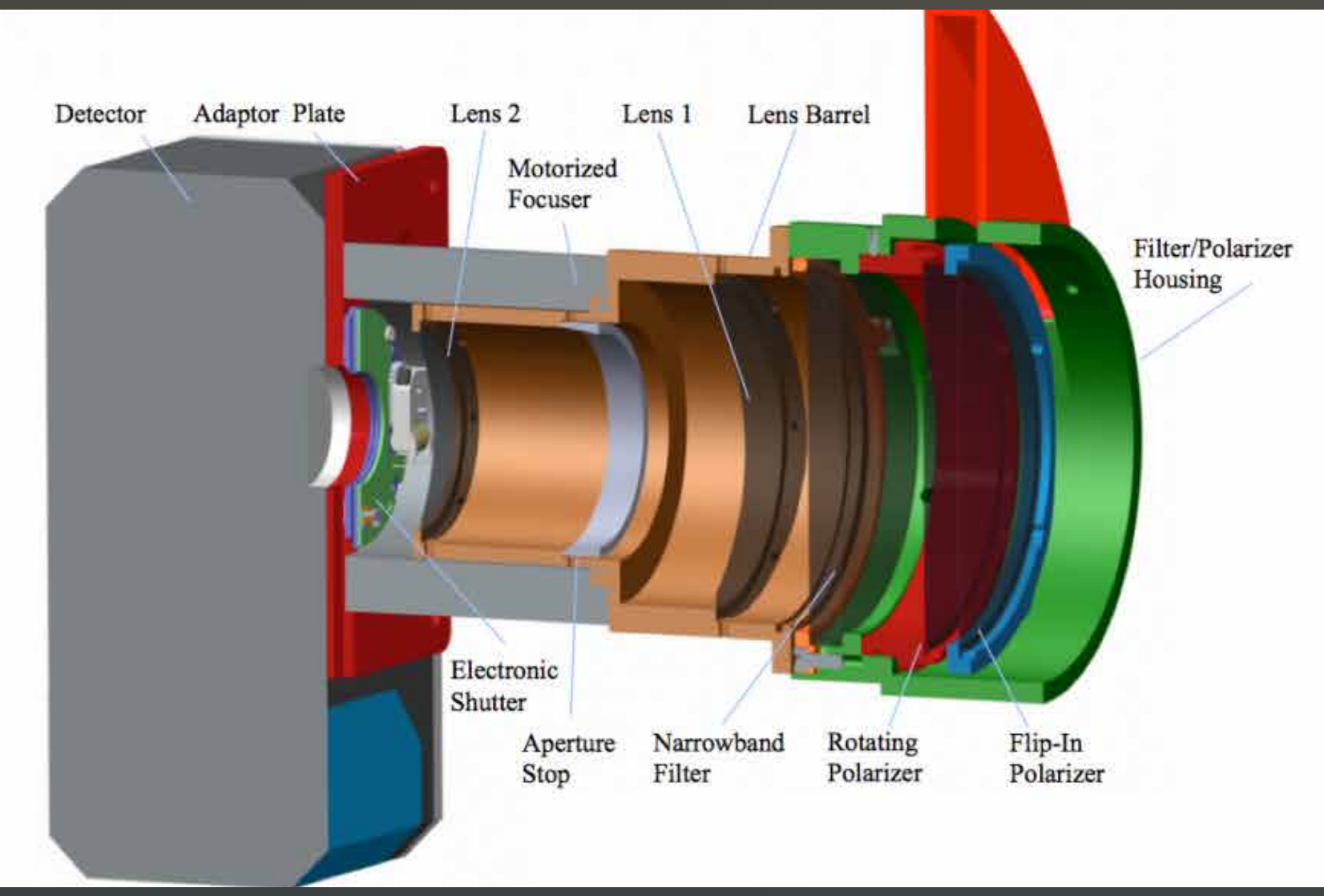
Nonproliferation Enabling Capabilities

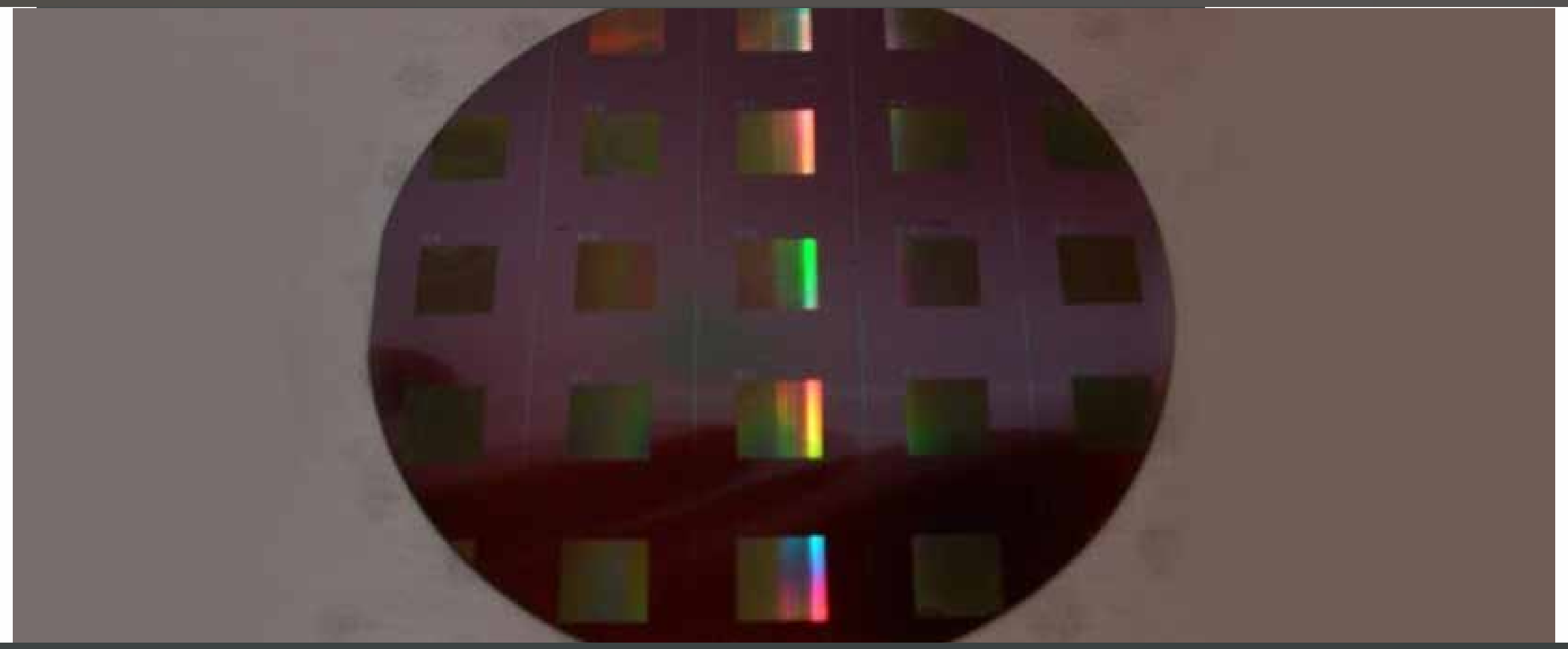
Hyperspectral Advanced Research & Development for Solids | Advanced SAR and Signal Processing Capabilities | Image Based Algorithms

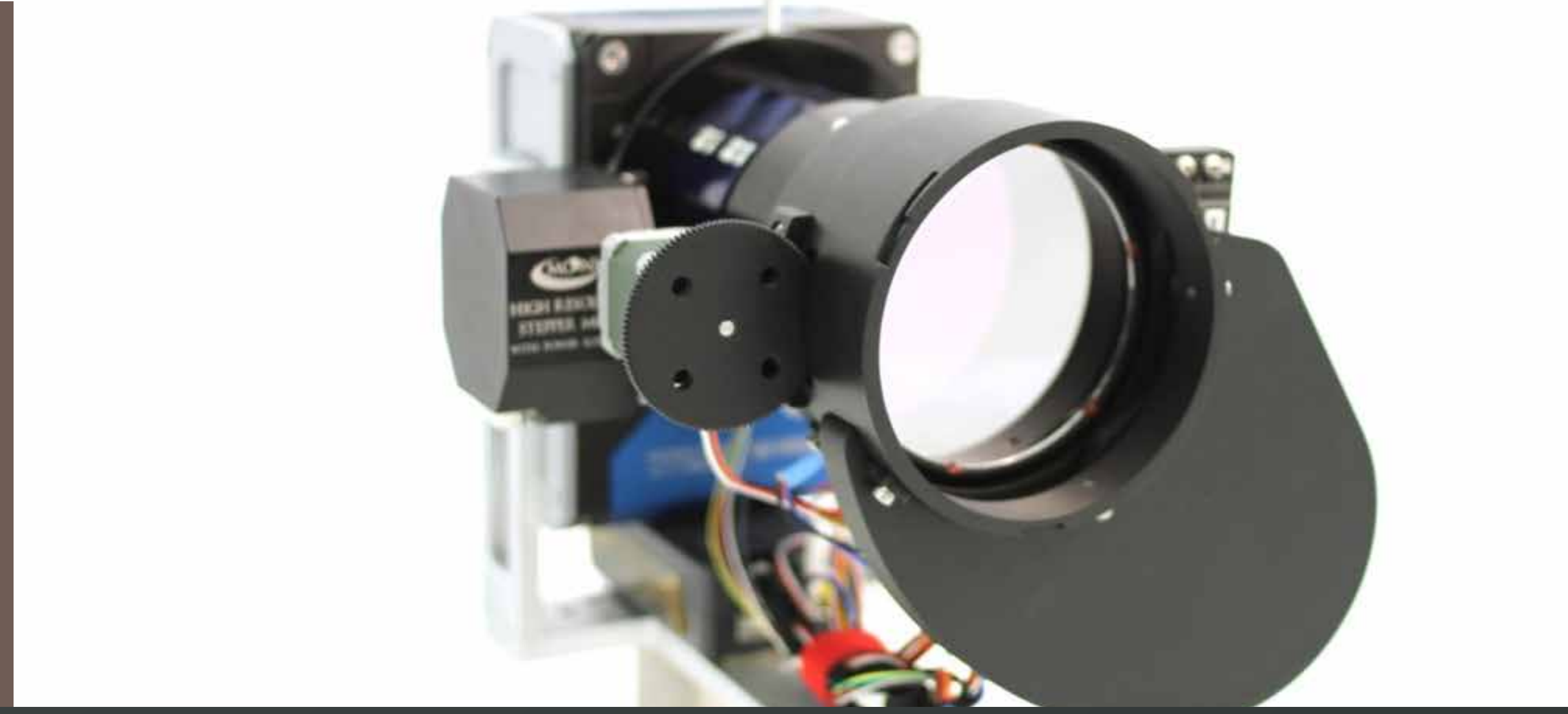
Applications for Antineutrino Monitoring to Nonproliferation | Polarization Exploitation of Taggant Remote Observables | Micro Scale Physics Analogues of High Explosives Tests

Above: The Source Physics Experiment (SPE) team utilizes HH Seismic's unique Seismic Hammer instrument, a 27-metric ton, 25-foot tall seismically-modified pile driver that creates impulsive, large-amplitude, spectrally broadband seismic waves non-explosively to complete field operations at the Nevada National Security Site (NNSS).

Far Right: Dosimeter polarization tag developed at Sandia for sensing gaseous molecules, and prototype fieldable SWIR imaging polarimeter designed, build and calibrated for polarization tag measurement.







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