

*Exceptional service in the national interest*



## Emergency Response Demonstration: MINER (Mobile Imager of Neutrons for Emergency Responders) Measurements

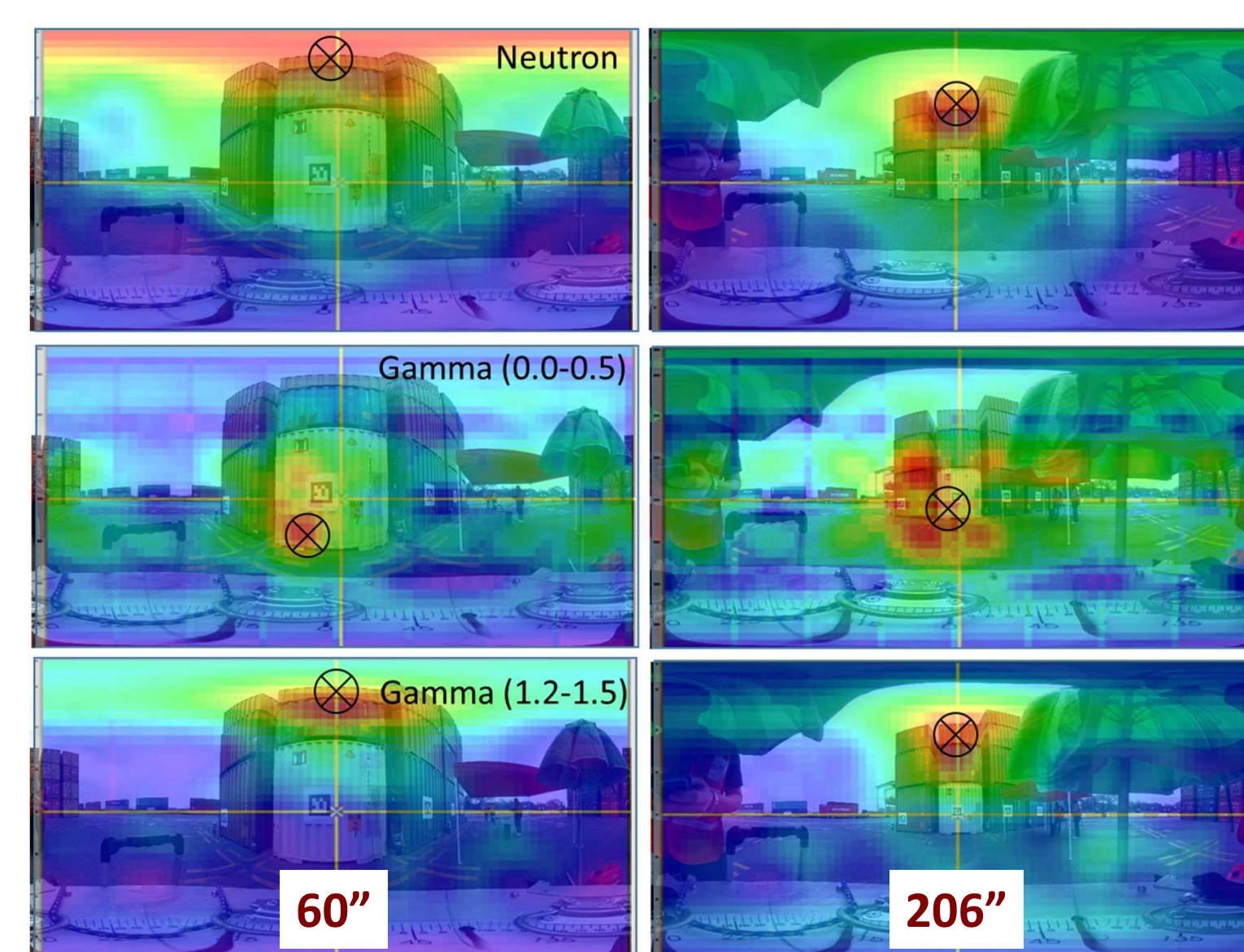
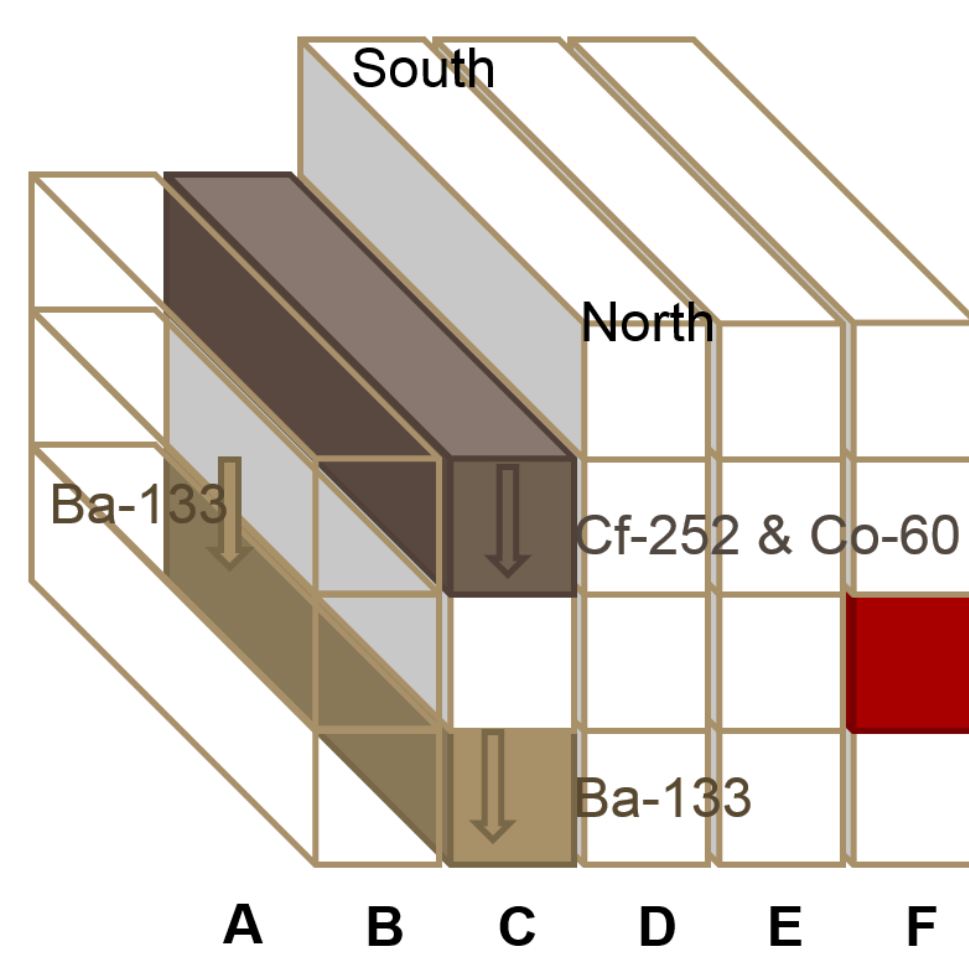
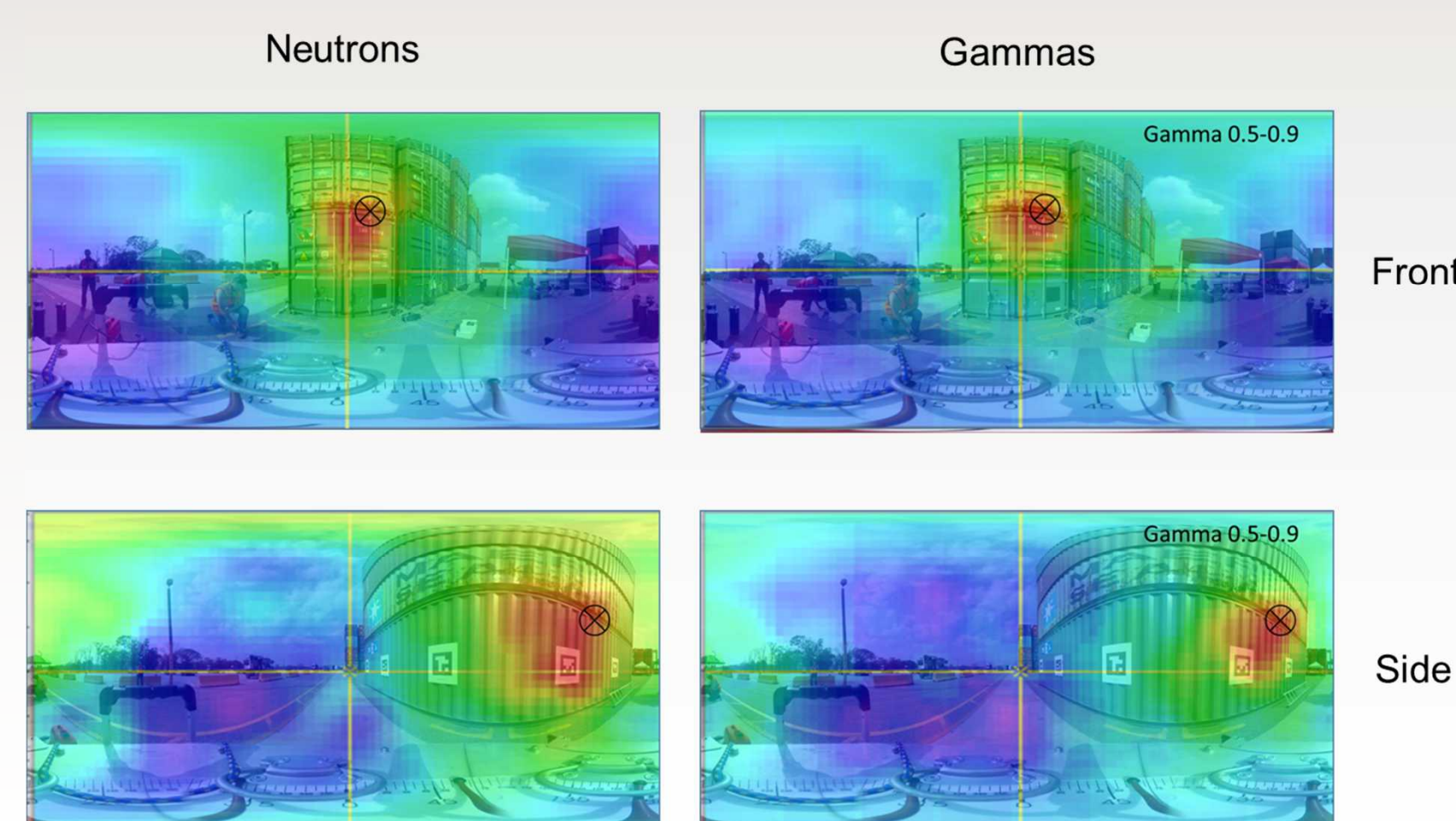
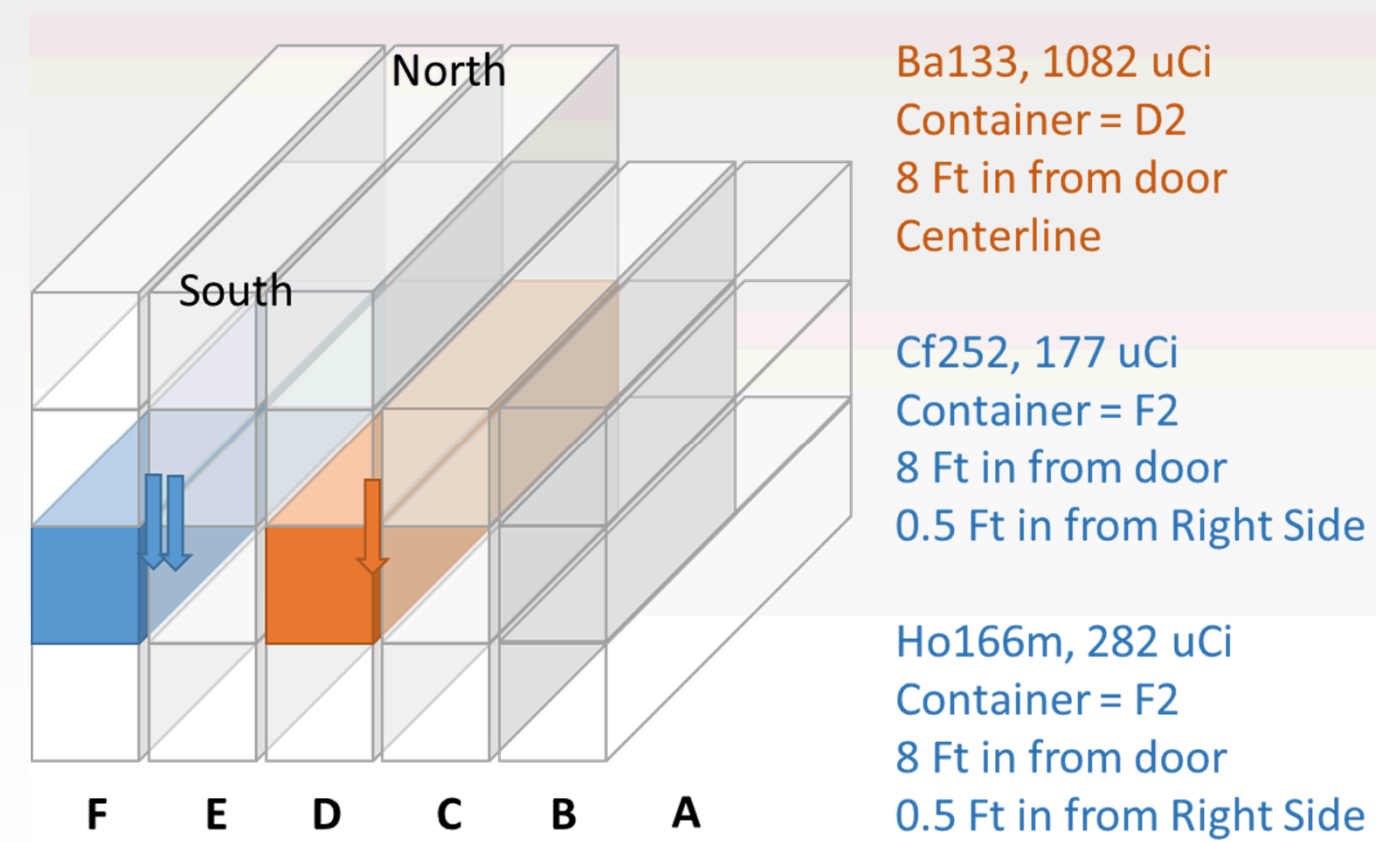
Principal Investigator: John Goldsmith, jgold@sandia.gov, 925-294-2432

Supporting Investigators: Mark Gerling and Jim Brennan

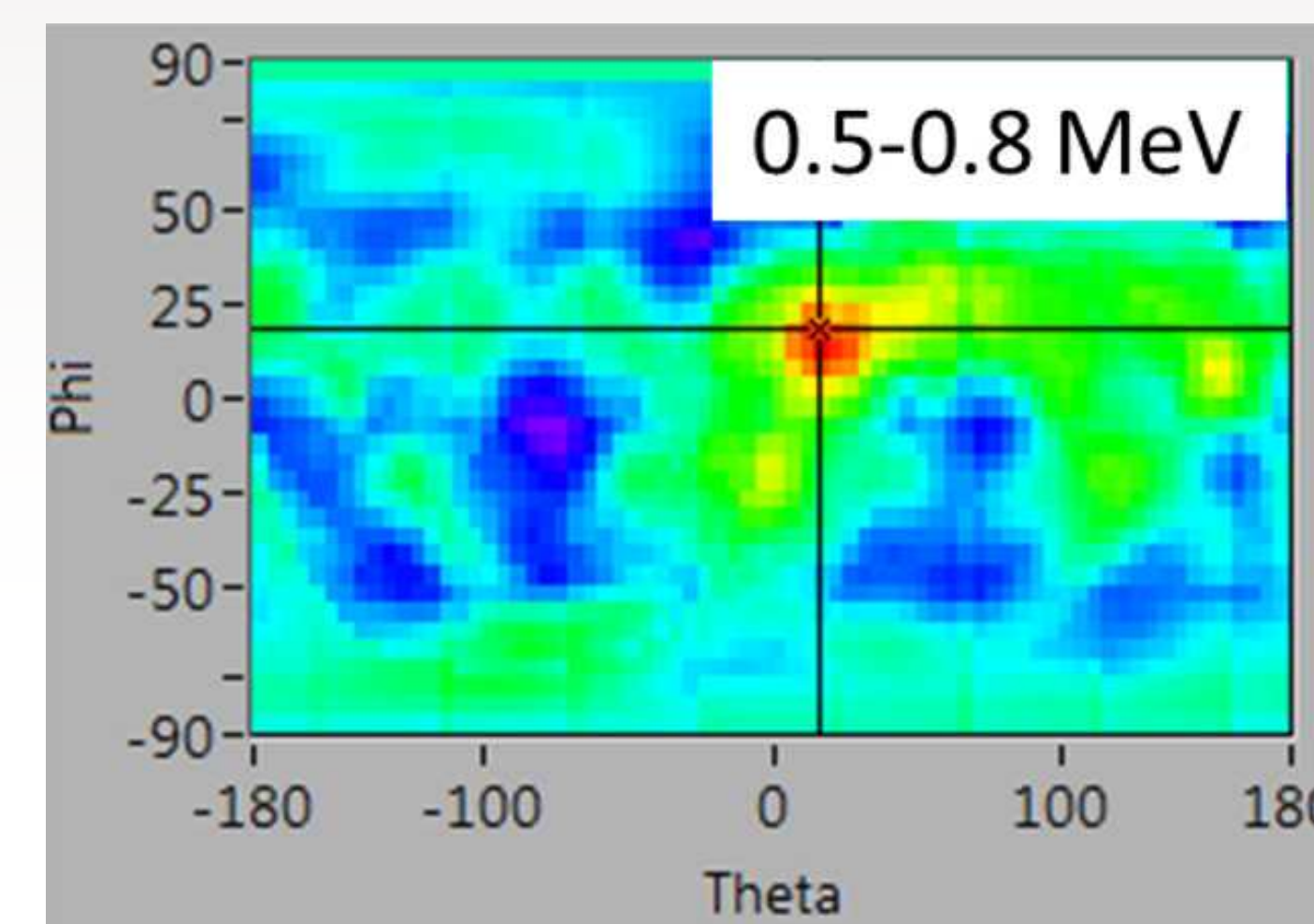
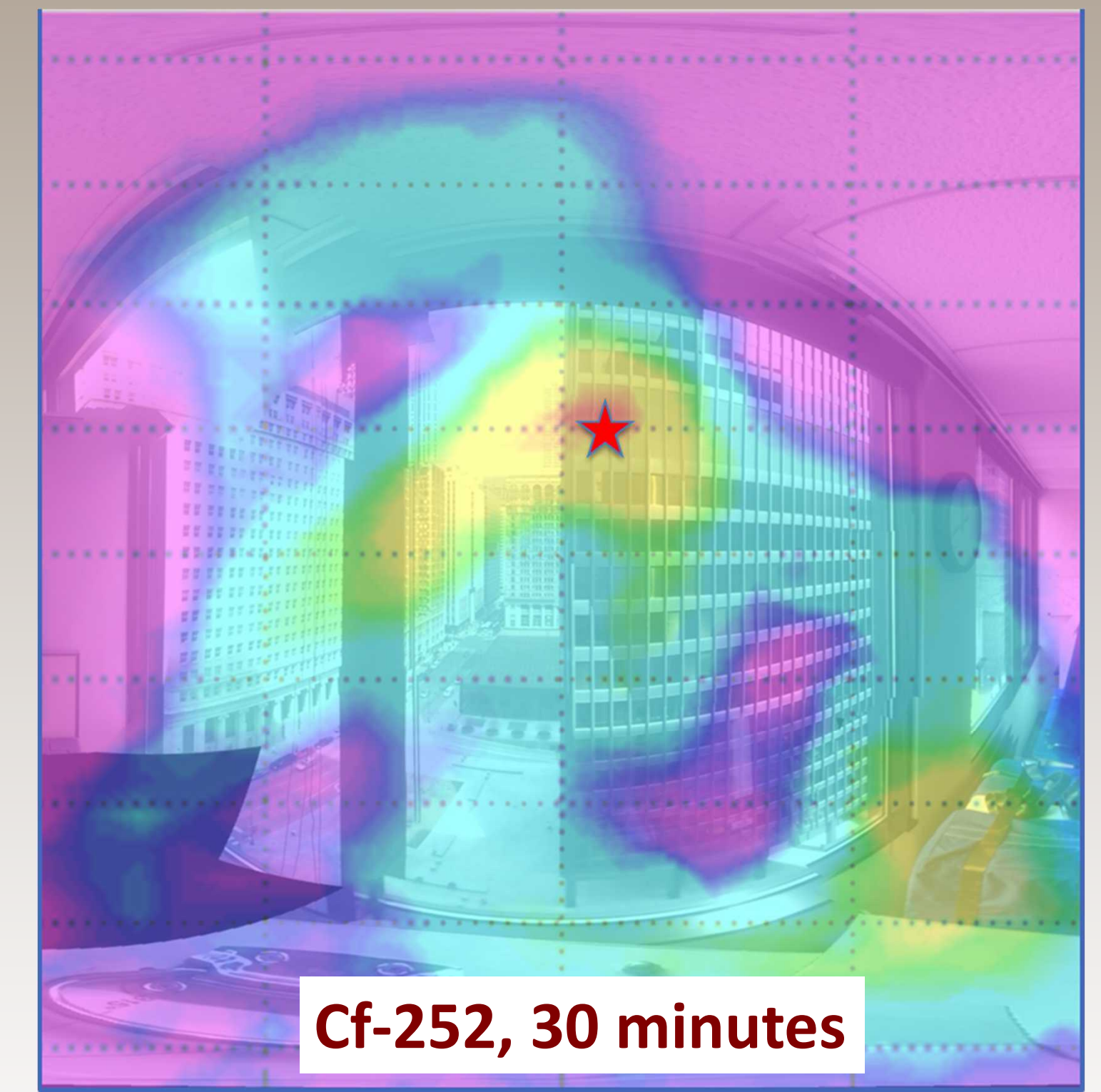
Sandia National Laboratories, Livermore, CA 94550

**Project overview:** This poster presents measurements performed with MINER, a compact neutron scatter camera, during three Emergency Response search demonstrations. Although designed primarily to localize fast-neutron sources, MINER can also characterize those sources, and localize and identify gamma sources (limited by the spectral resolution of the liquid scintillator detectors).

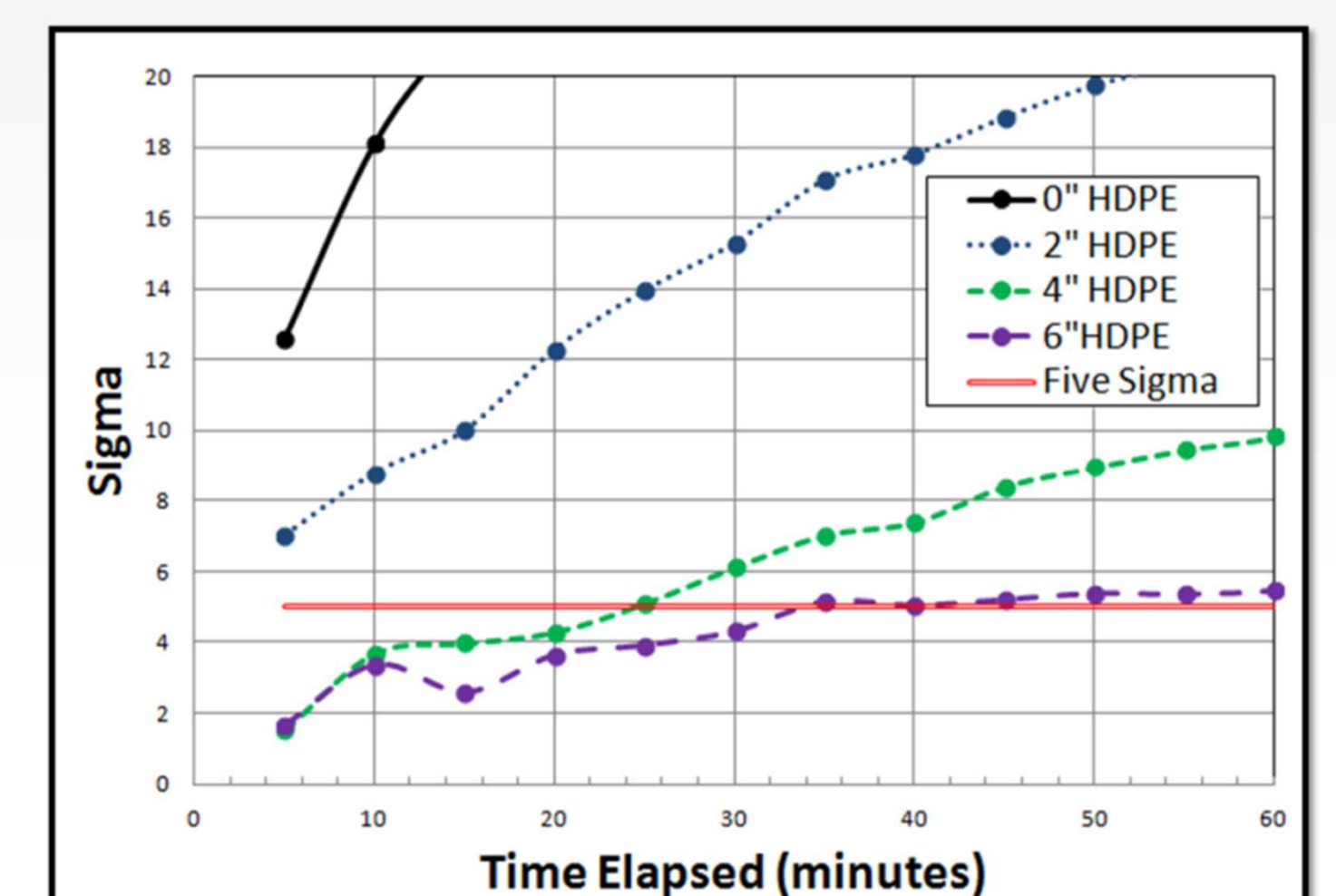
### Port of Savannah Container Stack - Blind Tests



### 28 m High-Rise to High-Rise



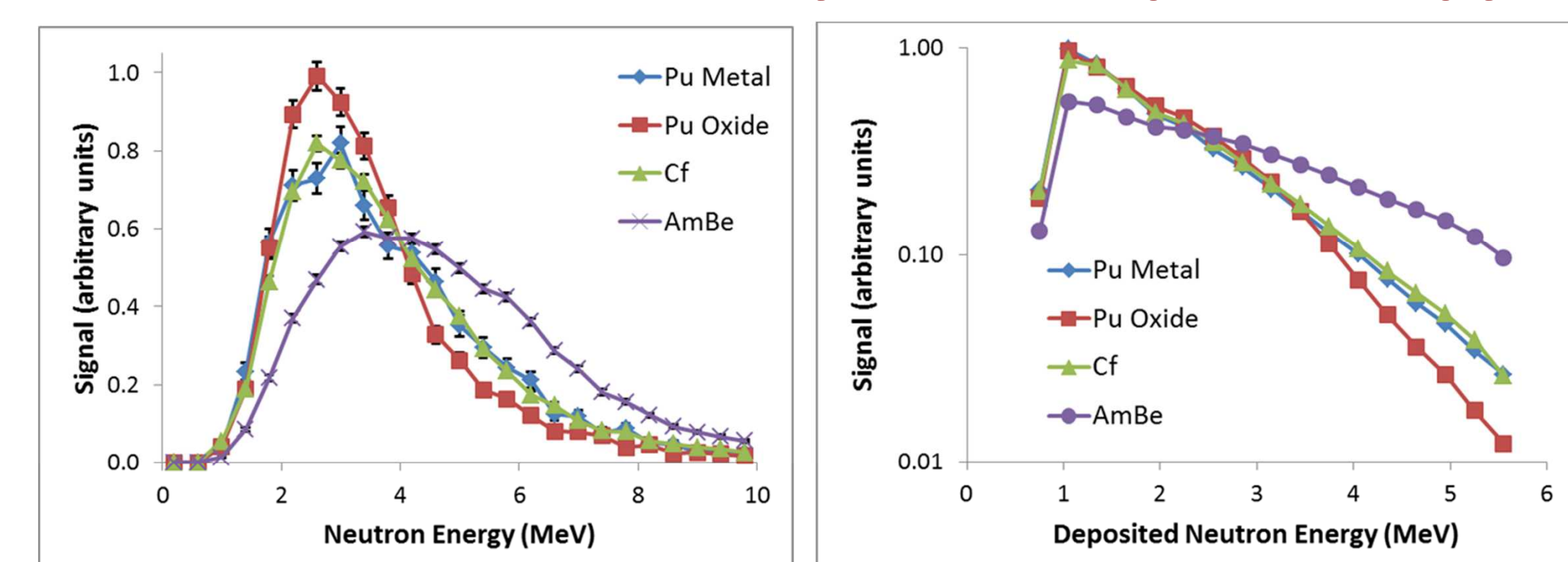
Cs-137, 5 minutes



Cf-252 time-to-detect

### Other Capabilities

#### Material identification by neutron spectroscopy

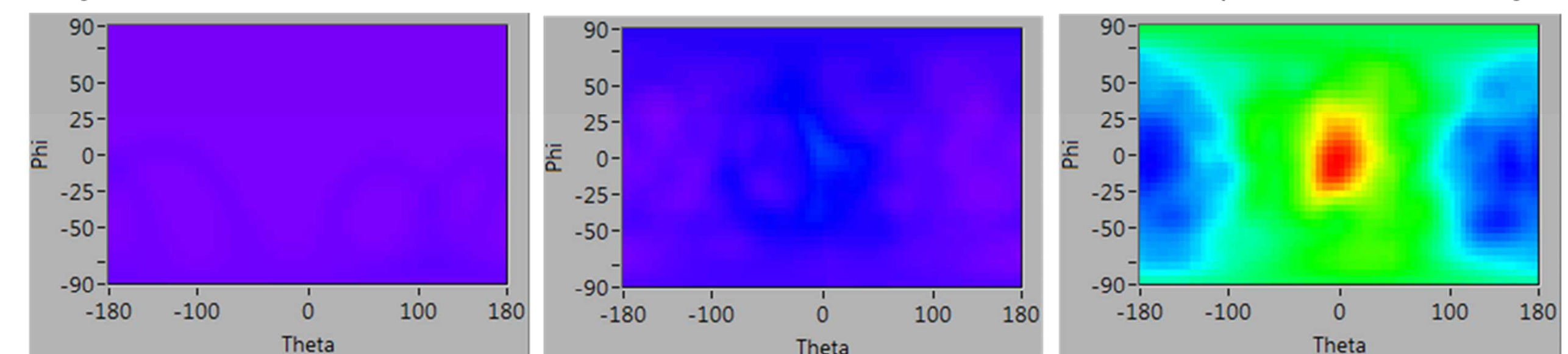


Double-scatter spectra

"Direct" spectra

#### HEU detection via active interrogation

"Object" inside to outside: Lucite, 3 HEU shells, 1 DU shell, lucite (AmLi next to object)

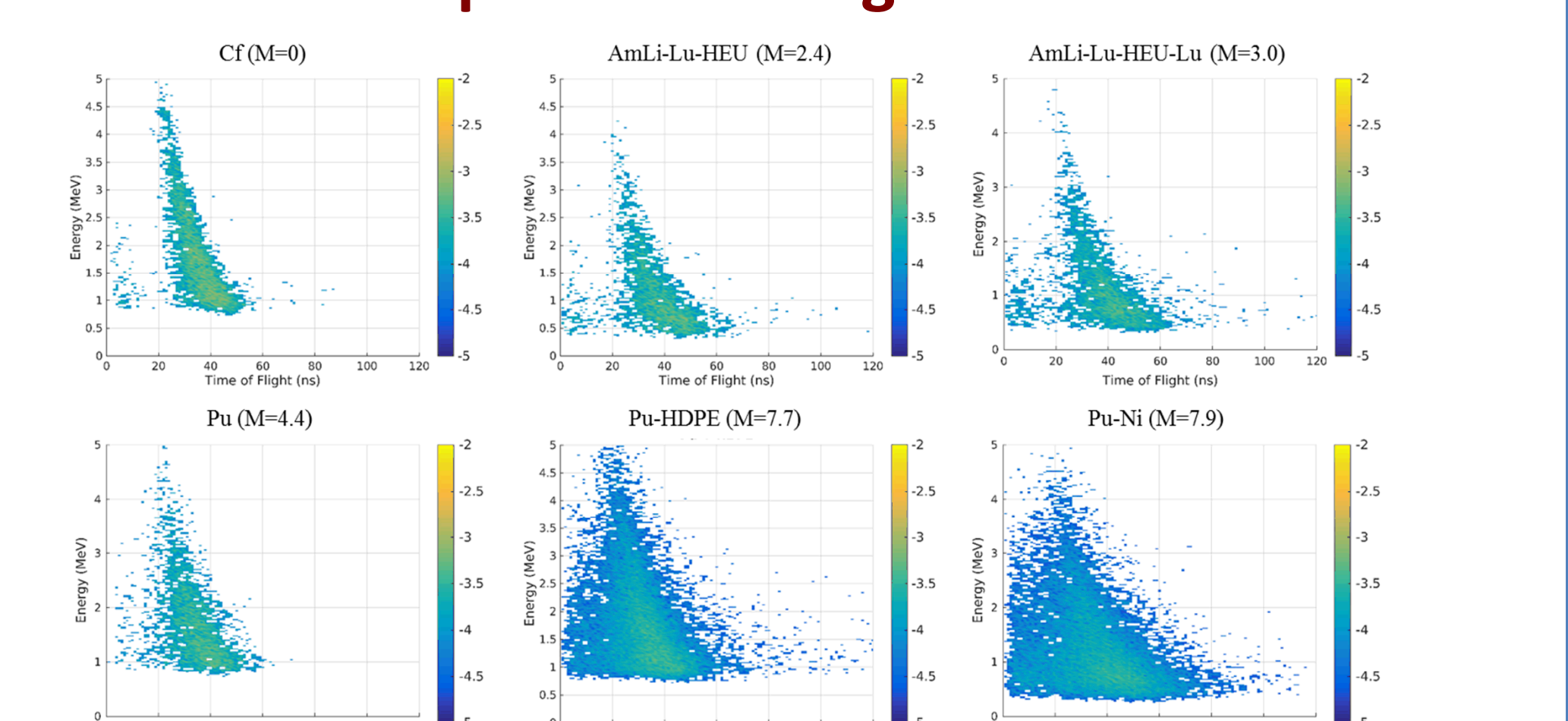


Object only

AmLi only

Object with AmLi

#### Determination of source multiplication using TCPH



### LLNL Container Stack

