



**GeGI  
Imager and Spectrometer  
15 lbs.**



**GeGI imager and  
spectrometer  
15 lbs.**

**Fulcrum  
Spectrometer  
7 lbs.**



**Fulcrum  
spectrometer  
7 lbs.**

**2017 IEEE Atlanta rollout**

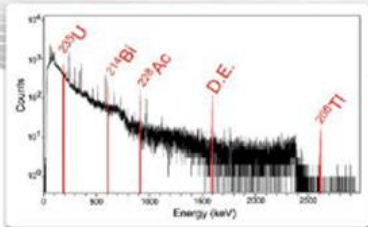
# GeGI<sup>®</sup>

**RAD NUC STANDOFF DETECTOR**  
Fast & Accurate Location, Identification & Quantification



Wide-angle optical camera combined with gamma-ray imaging spectrometer capture the nuclear environment quickly and accurately.

## High Resolution Spectroscopy and *Automatic* Identification



## Applications

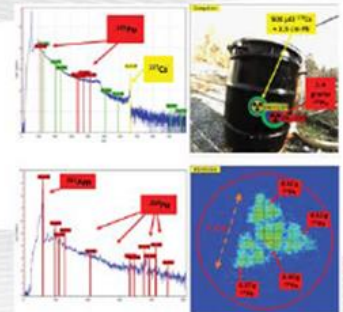
- Military and Civilian CBRNE Operations
- Nuclear Safeguards
- Nuclear Security
- Special Nuclear Materials Analysis
- Decommissioning & Decontamination

## Specifications

Dimensions:	10.5 in x 8 in x 5.5 in (26 cm x 20 cm x 14 cm)
Weight:	15 lbs (6.8 kg)
Battery life:	3 hours internal, 5 hours external, all hot swappable
Power supply:	100-240 VAC, 50-60 Hz
User maintenance:	None
Energy resolution:	FWHM < 2.1 keV (0.3 %) at 662 keV
Gamma-ray Compton imaging field of view:	4π (360°)
Optical (camera) field of view:	2π (185°)
Pinhole imaging field of view:	60° cone
Sensitivity: 10-μCi <sup>137</sup> Cs at 1 meter (3.3 μR/hr, 33 nSv/hr)	
Detection and ID time (662 keV) (8σ):	3.7 sec ± 1.0 sec
Location (Compton image) time:	30 sec ± 13 sec
Exposure/rate capacity:	200 kcps (10% Dead time) In 15 mR/hr <sup>60</sup> Co
Energy range:	30 keV – 3 MeV
Imaging energy range:	
Pinhole (2.54-cm thick Pb 60°):	30 keV – 662 keV
Compton:	140 keV – 3 MeV
Isotope library (400 Isotopes):	Auto detect and/or user selected/specified
Isotope Identification:	37 frequently encountered isotopes
Detector (Ge crystal) dimensions:	90-mm diameter, 11-mm thick
Active detector volume:	60 cm <sup>3</sup>
Active detector area:	55 cm <sup>2</sup>
Cool-down time:	2.5 hours
Start-up time (cold):	2 minutes
Included:	Rugged daylight-readable glove-touch tablet, pelican case, power supply, battery charger

## Features

- Standoff Location Detection Identification
- Distance Range (10 cm - 50+ meters)
- Automatically specifies SNM, NORM, IND, MED
- Germanium gamma-ray spectroscopy (16k ch)
- Full 360° Standoff Visualization (Compton)
- <sup>235</sup>U (186 keV) <sup>239</sup>Pu (375 keV, 414 keV)
- User-friendly single-button glove-touch operation
- Hot swappable battery operation
- Full session save and reload capability
- Full data-stream availability
- Wireless capable/wireless option can be disabled
- Twist-lock mil-spec power connector
- Long-lived internal cooler (5 years +)
- Reachback file: ANSI N42.42 format
- Remote operation



Lead (Pb) Pinhole Imaging Aperture  
60-degree Field of View

Optional External  
Li-ion Battery Pack

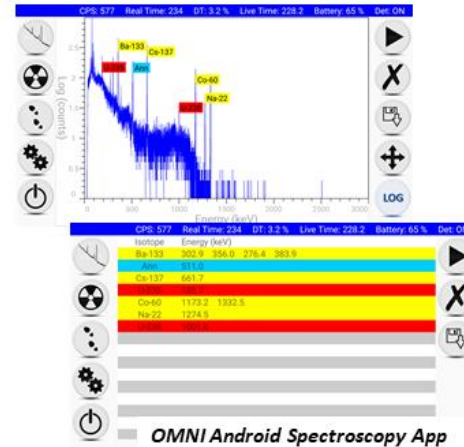


# Fulcrum<sup>25</sup>

HPGe Spectrometer



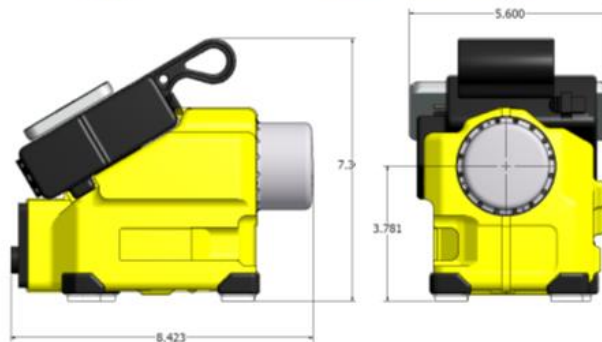
**Hand Portable  
High Resolution  
HPGe detector**



Wireless or USB cable operation  
4-inch Android phone i/o device  
ANSI N42.42 Reachback output  
Automatic Isotope ID  
NORM, IND, MED, SNM  
Bluetooth, GPS, Wireless capable  
Count-rate vs. time display for search

122 keV FWHM ~ 1.0 keV  
1332 keV FWHM ~ 2.2 keV

7 lbs with onboard battery (as shown)  
Stirling-cycle Cooler (no LN<sub>2</sub>)  
3-4 hr onboard battery life (as shown)  
9-12 hr external battery (2590)  
60 minute cool-down time



# Radioisotope separation at ORNL REDC



Imager - [20160328\_081226-4GMT.img]

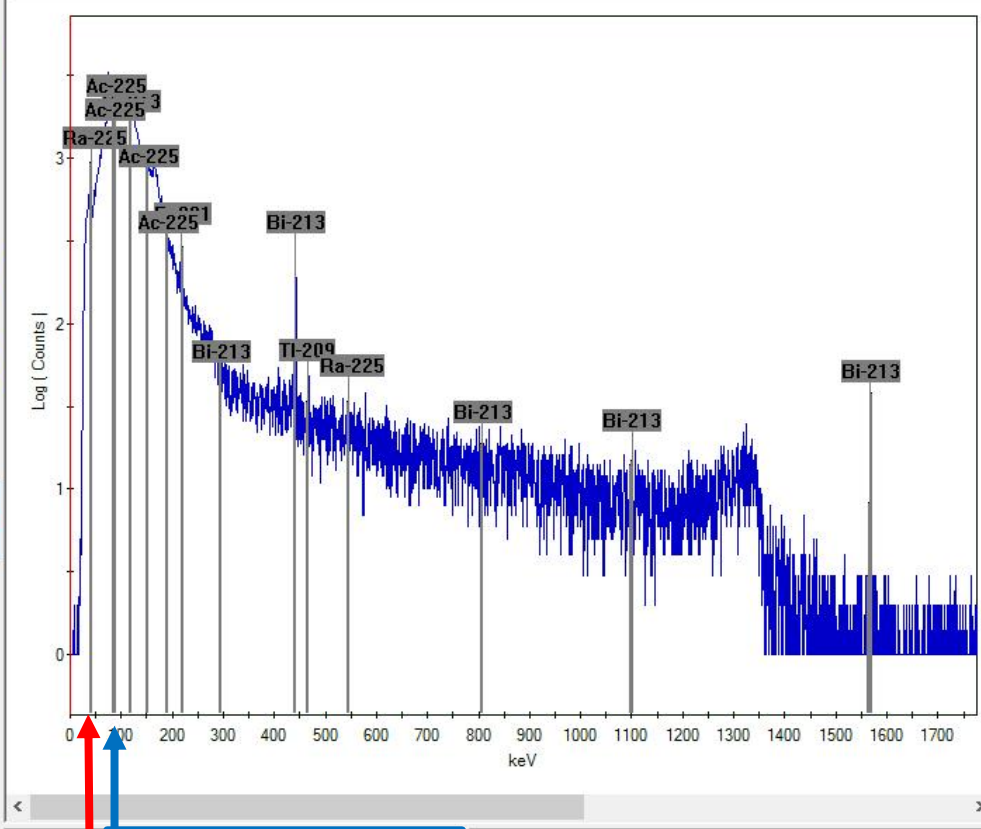
File Acquire View Tools Options Show Window Help

Home Play Camera Stop X X+ RB

Time: 303  
CPS: 0 67 uR/hr

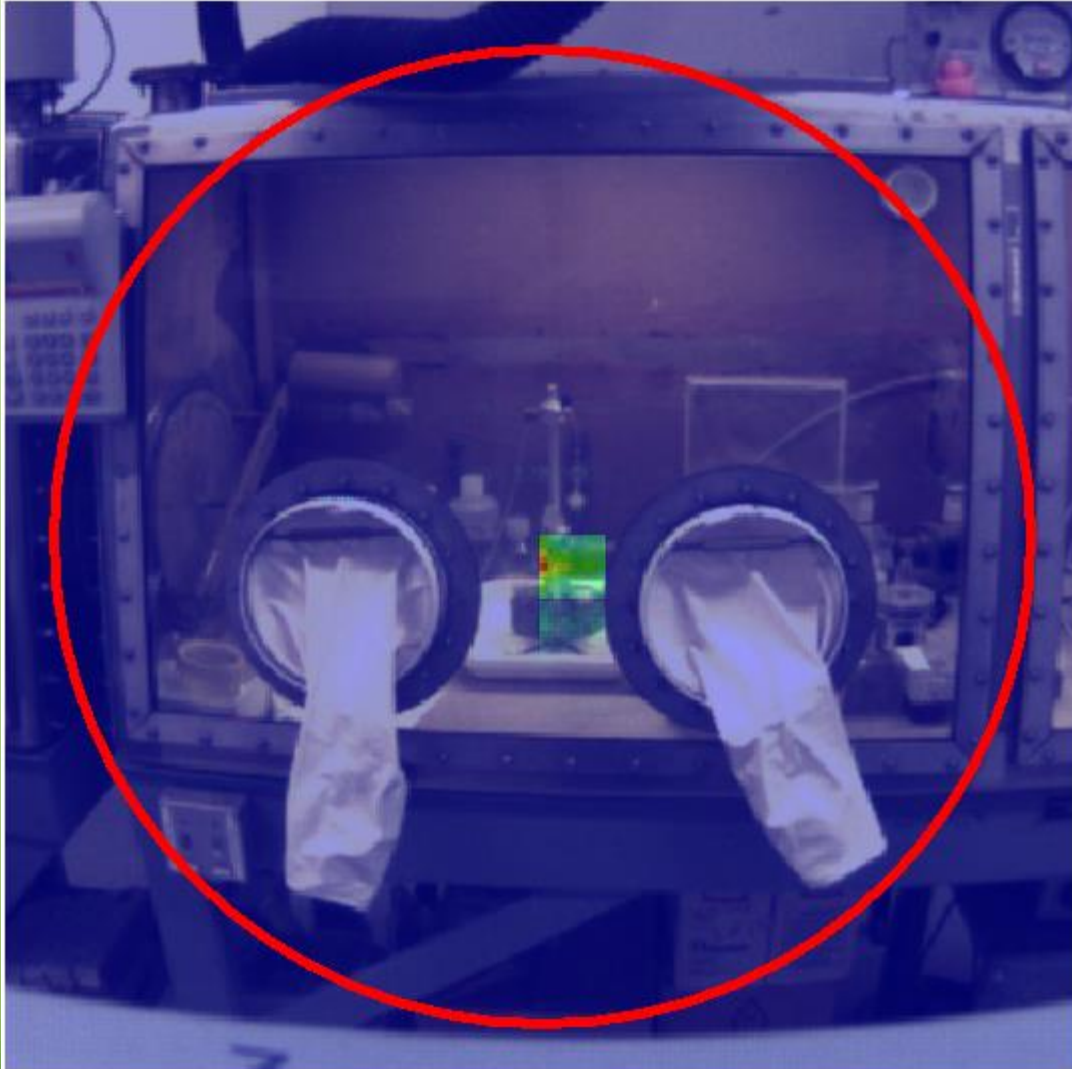
Saved File  
Temp (K): 0.0

ADV X



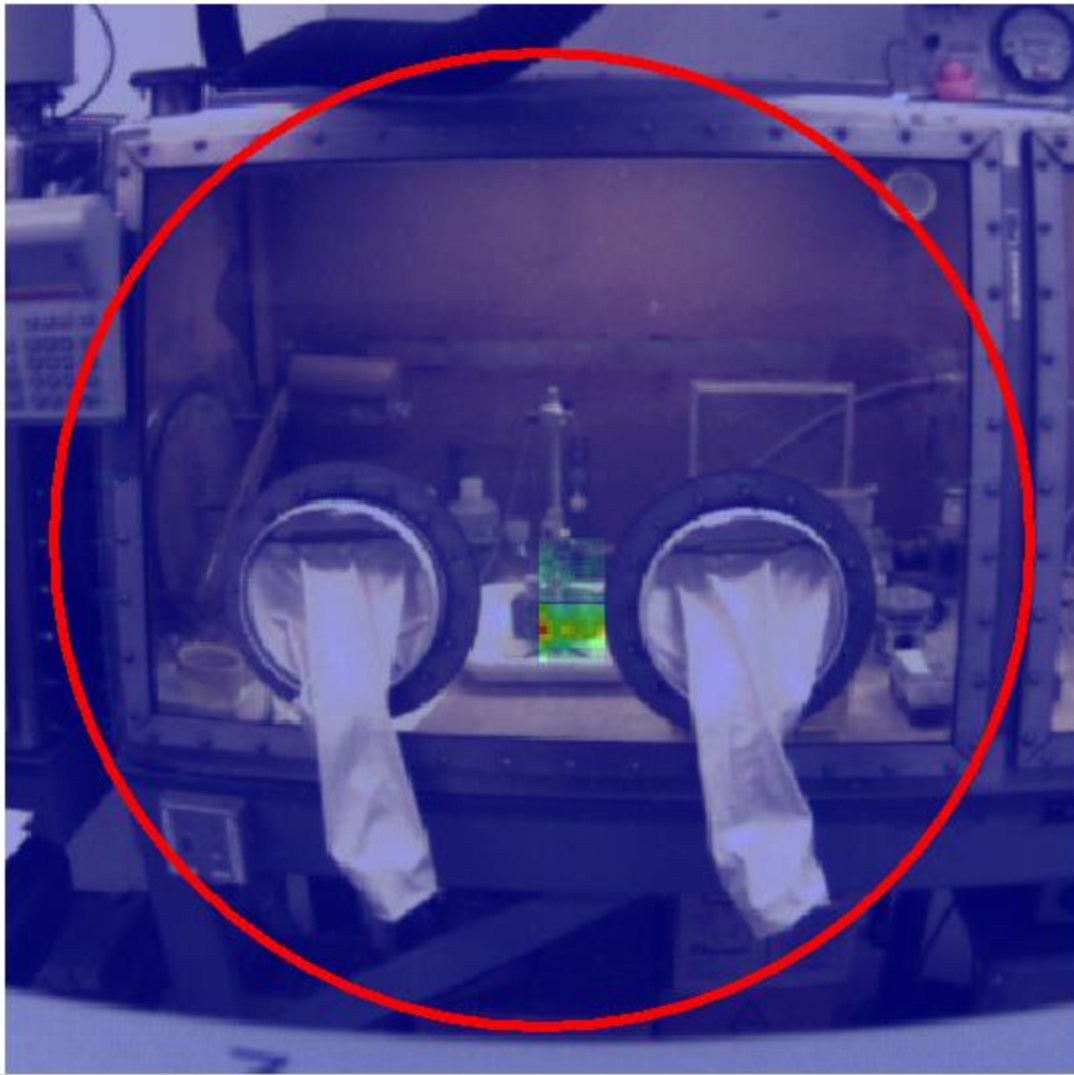
99.8 keV <sup>225</sup>Ac  
40 keV <sup>225</sup>Ra

40 keV  $^{225}\text{Ra}$



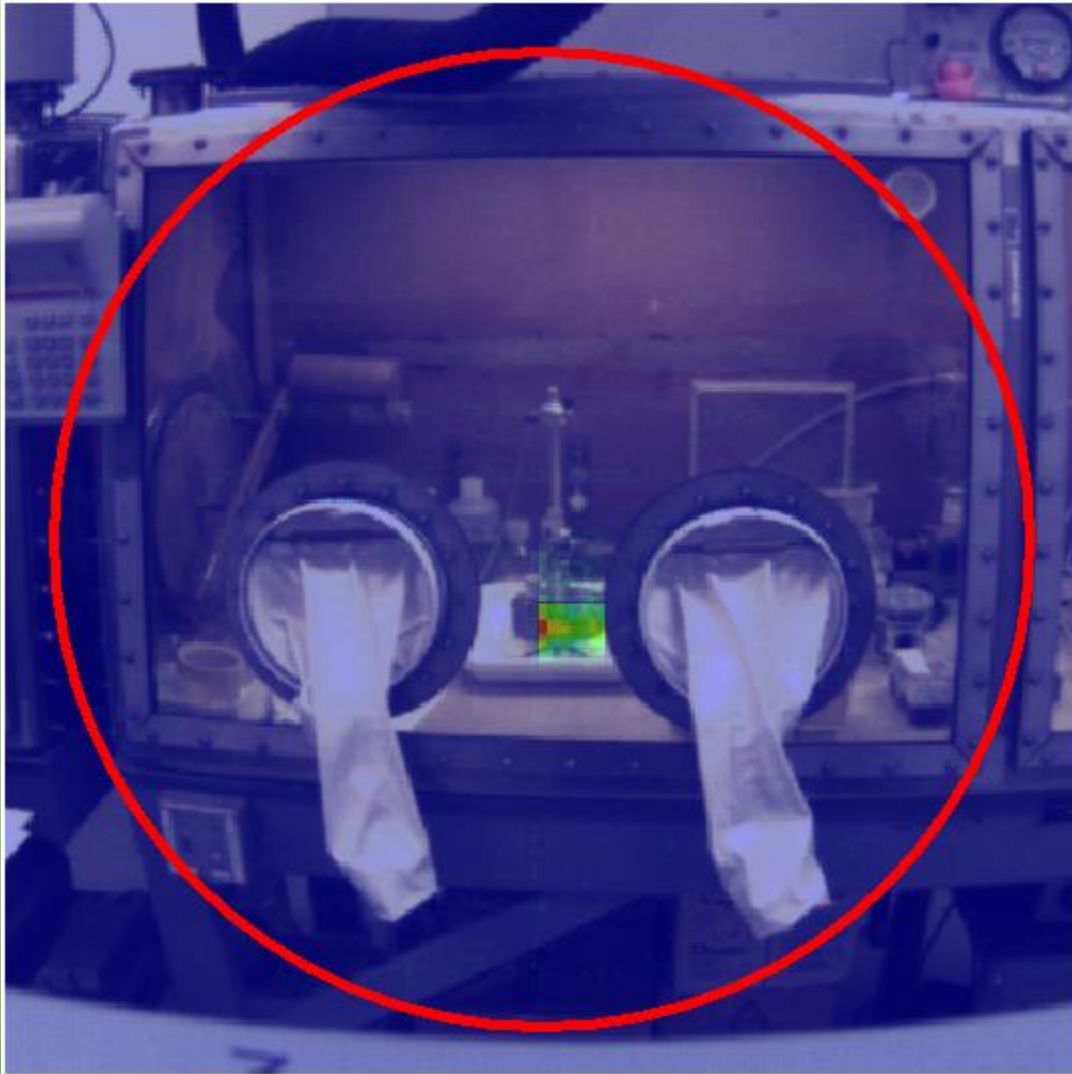
5 min

40 keV  $^{225}\text{Ra}$



10 min

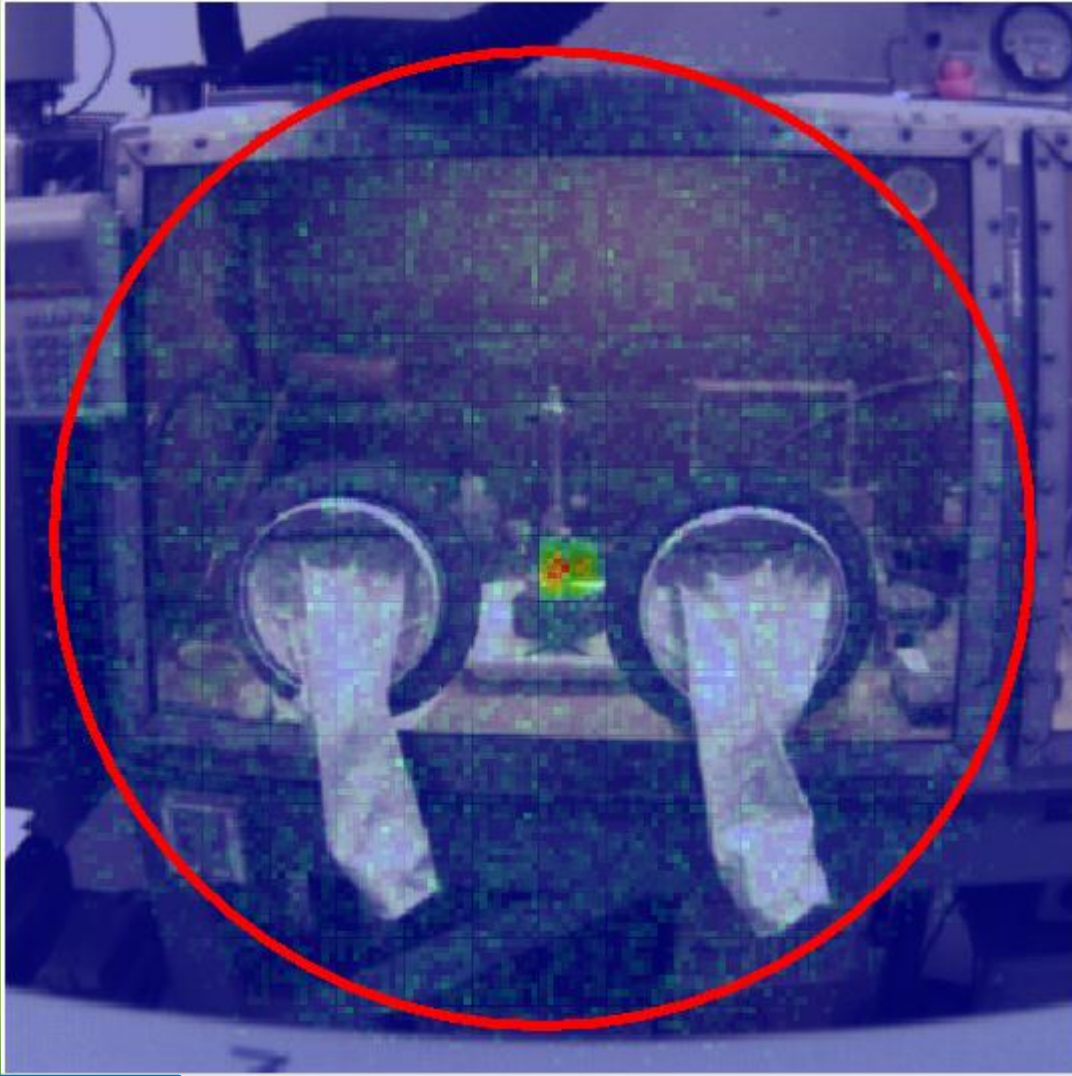
40 keV  $^{225}\text{Ra}$



15 min



99.8 keV  $^{225}\text{Ac}$



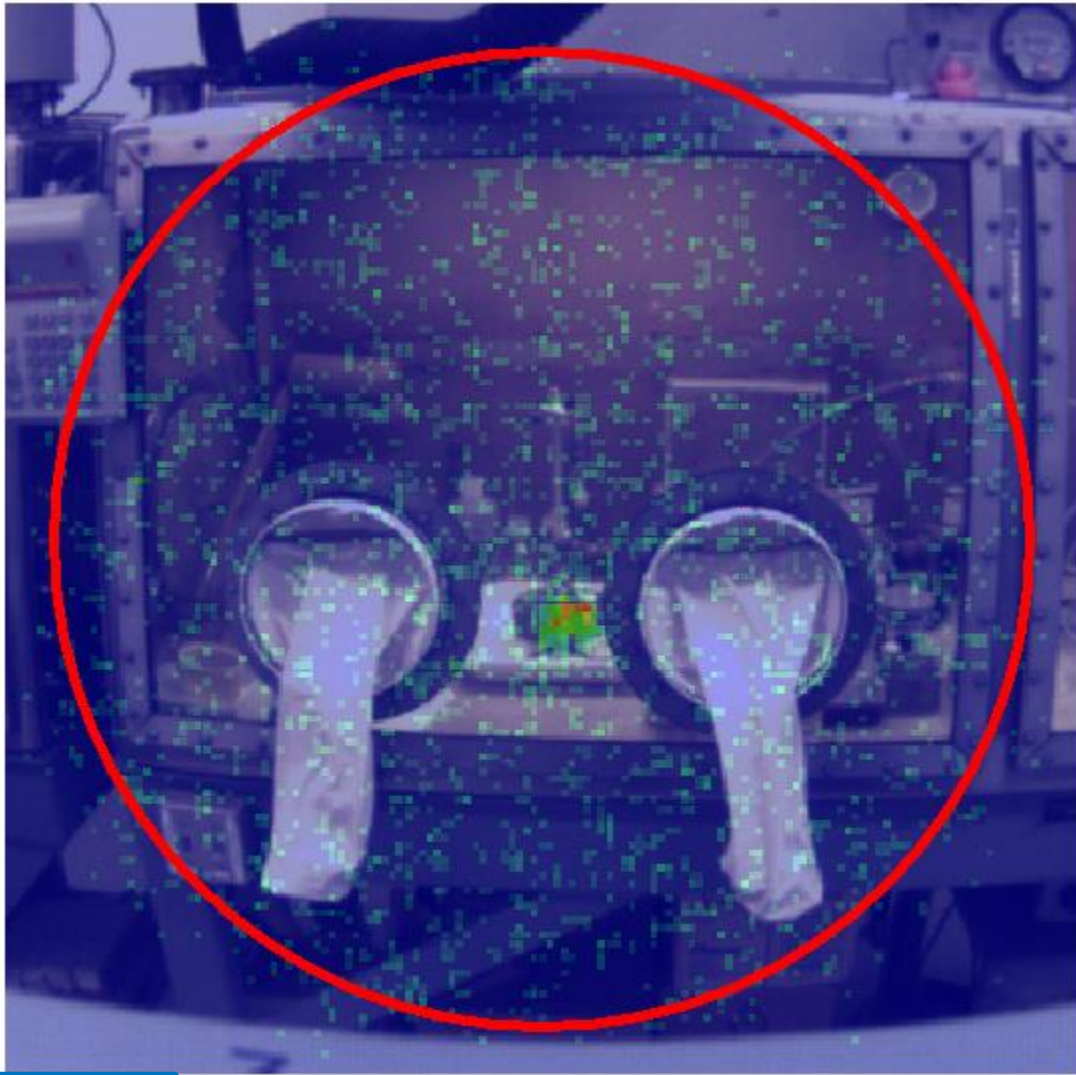
5 min

99.8 keV  $^{225}\text{Ac}$



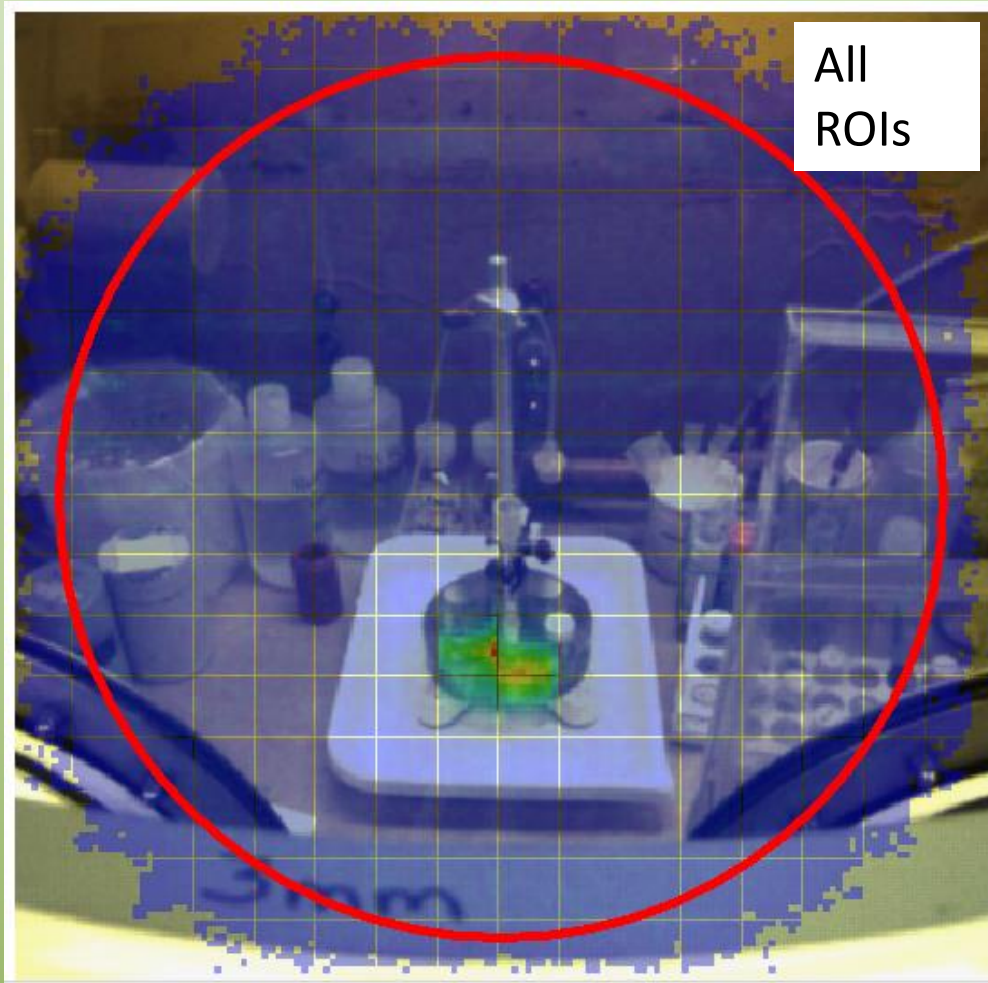
10 min

99.8 keV  $^{225}\text{Ac}$

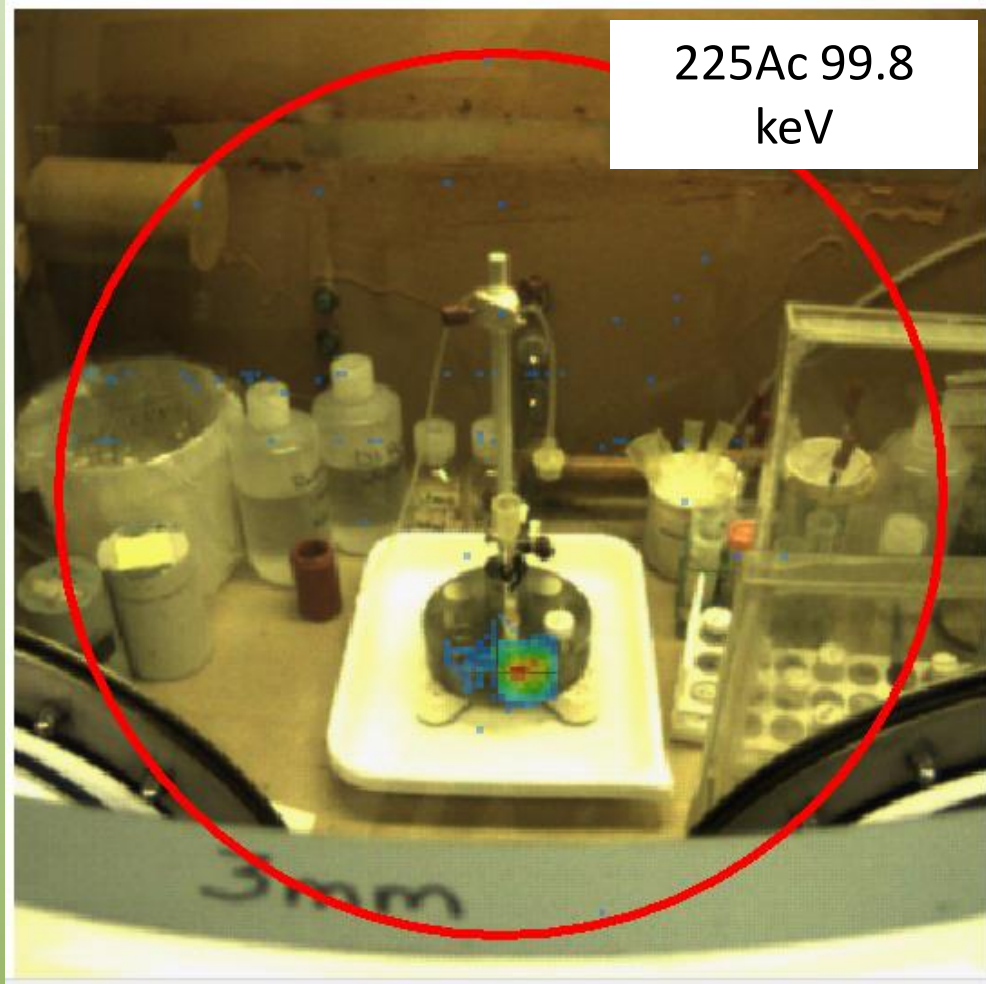


15 min

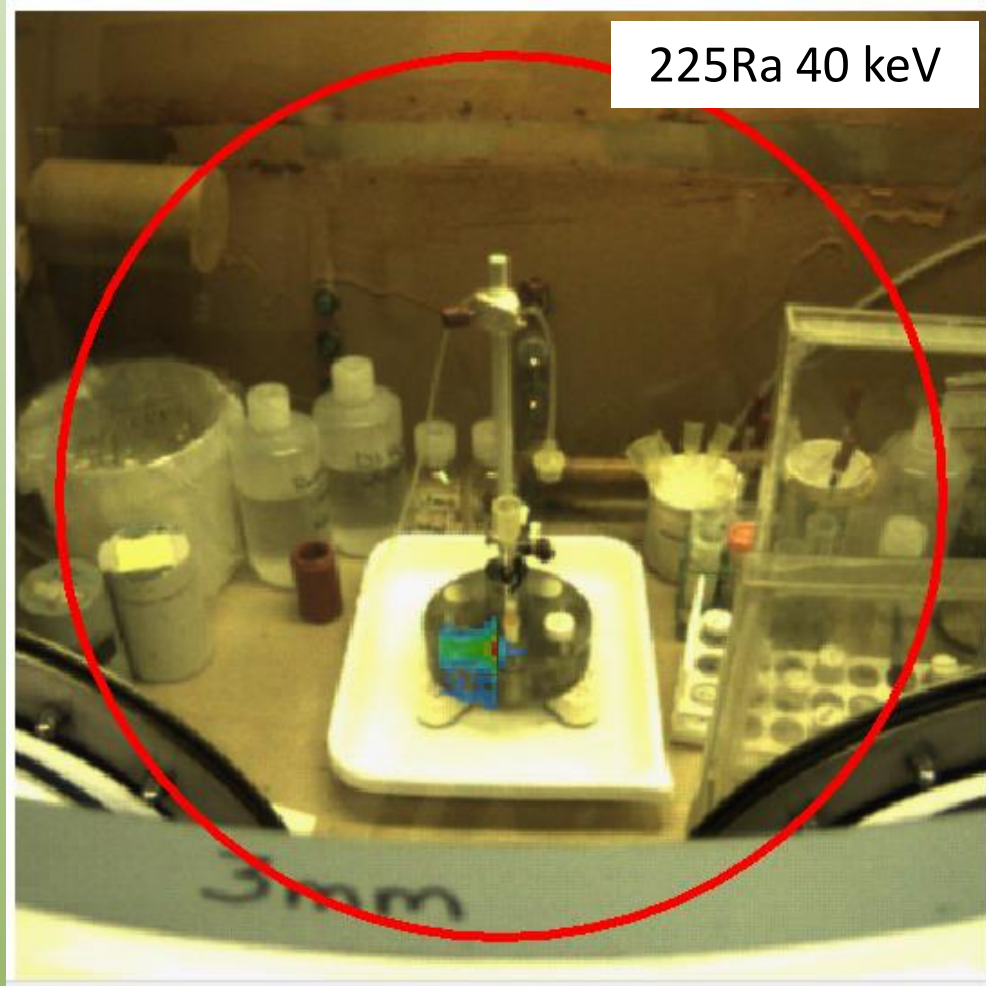
# Collection Carousel



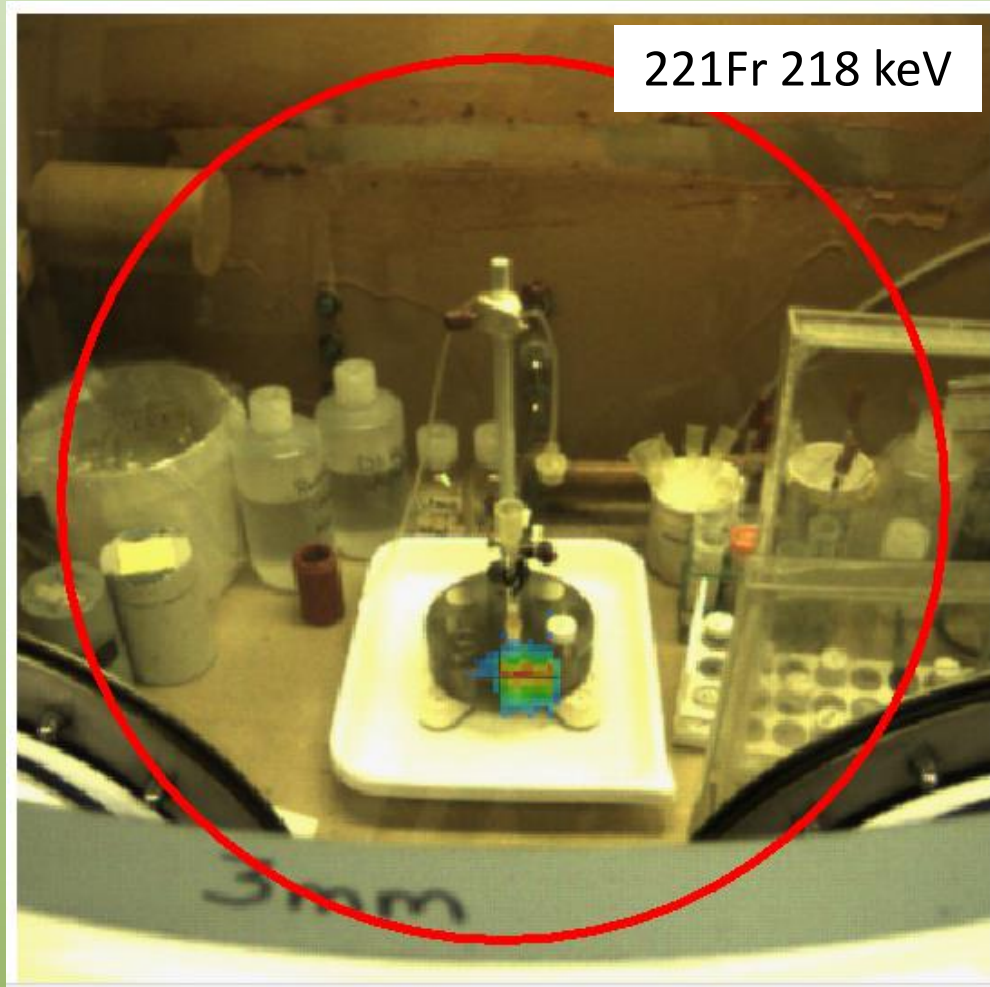
# Collection Carousel



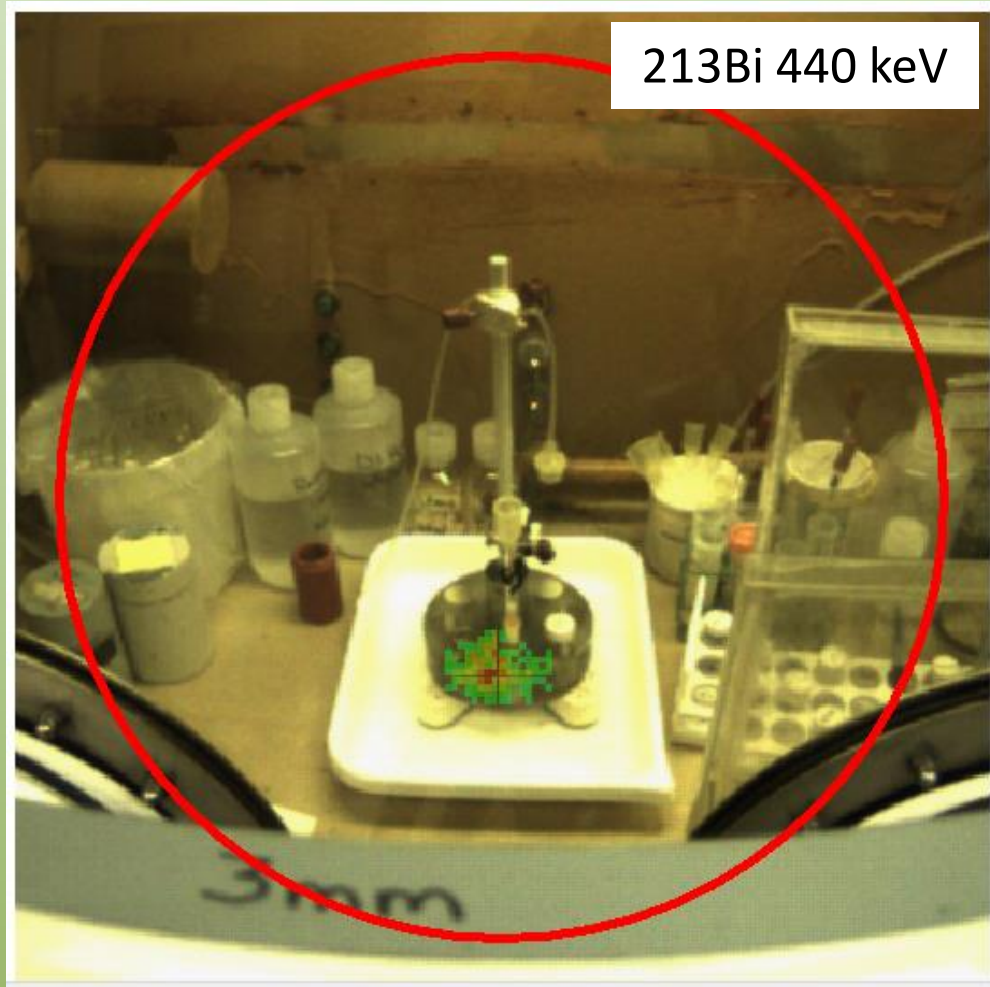
# Collection Carousel



# Collection Carousel



# Collection Carousel





# Collection Carousel

