

# M3D

## Visualizing Radiation

### Radiation Imaging Catalog

- Room contamination + cleanup
- Radionuclide therapies
- Shielding surveys
- Multiple simultaneous sources
- Isotope ID



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📍 M3D, Inc., Ann Arbor, Michigan  
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# M3D

## RAVIN CAM by M3D



>19 cm<sup>3</sup> pixelated CZT

**Imaging/Spectroscopy Range:**  
30 to 662 keV

**Energy Resolution:**  
1.1% FWHM @ 662 keV

**Minimum Activity for Imaging:**  
1uCi 140 keV @ 1m


**Dose Rate Range:**  
1 nSv/hr - 1 mSv/hr @ 140 keV



**Dose Rate Accuracy:**  
±10% @ 662 keV

**Size:**  
8.7" (H) x 7.9"(W) x 10" (L) /  
22 (H) x 20 (W) x 25.5 (L) cm

**Weight:**  
5lbs / 2.3kg

**Operating Temperature:**  
15-25 °C

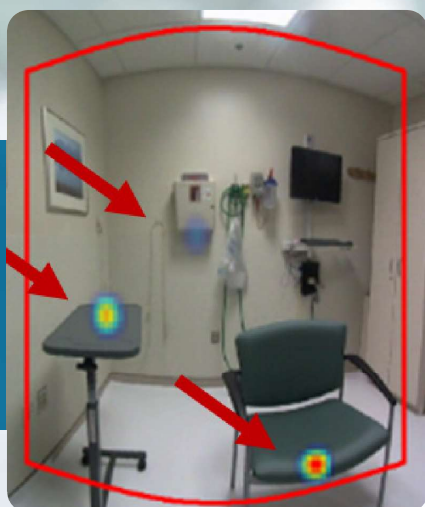
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### Contamination Imaging and Identification

- Quickly Determine location of contamination
- Identify radioisotope and activity of contamination
- Image contamination at distance up to 50 ft.
- Reduce risk of unknown exposures to staff and patients



(Above) Three distinct areas (red arrows) of  $^{99m}\text{Tc}$  contamination in waiting room after patient taken to imaging suite.

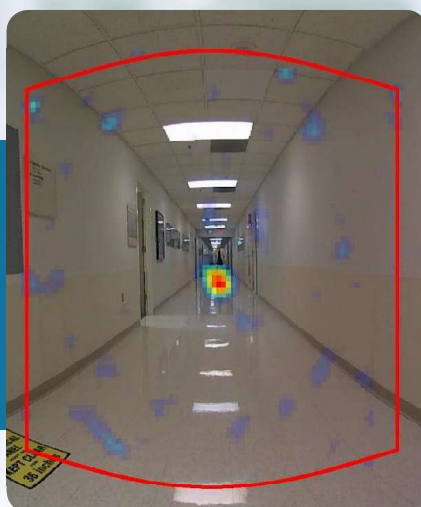


Image of F-18 contamination at a distance of 50 ft in imaging suite hallway.



Image of Lu-177 in patient bathroom after radio-nuclide therapy treatment.

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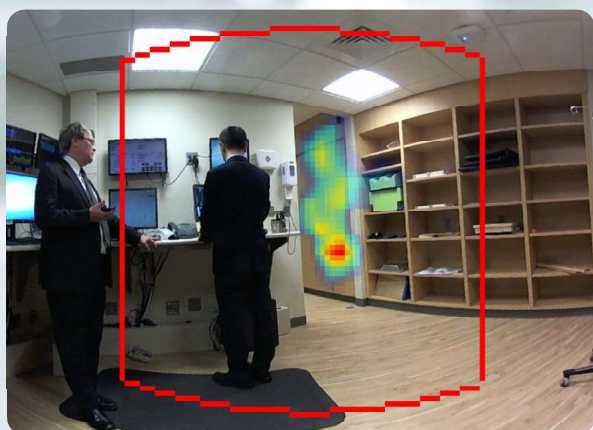
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### Imaging based shielding surveys

- Identify gaps or weak spots in shielding
- Locate pathways of scattered radiation
- Verify linear-accelerator and treatment-vault shielding
- Reduce exposure risk to medical workers and staff



(Above) Scatter radiation around barrier wall in a CT control room. (left) Imaging around the diagnostic and treatment rooms not only provides an indication that leakage or scatter radiation is present, but it allows for immediate identification of its location, extent, and intensity. This allows weak spots in the shielding to be located and its size and transmission factors to be determined for repair purposes.



(Left)  
Leakage  
through the  
edges of a  
radiation  
therapy  
vault door.



(Left)  
Leakage  
identified in  
the ceiling of  
a CT control  
room.

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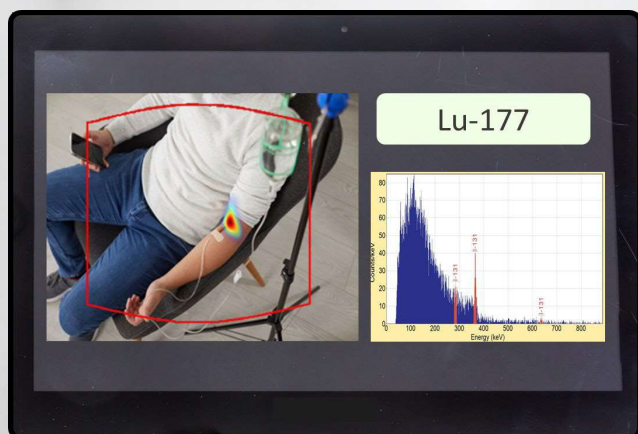


# M3D

## Image patient activity during and post procedure

- Dose rate survey for patient discharge.
- Identify location/extent of residual activity.
- Imaging of organ specific uptake.
- Extravasation identification and visualization.



## Radionuclide Therapy





*Real-time monitoring and imaging of Lu-177 infusion for identification of possible extravasations.*



*Display of dose rate on LCD screen on RAVIN camera. Imaging of activity during patient release survey after <sup>131</sup>I radio-ablation.*

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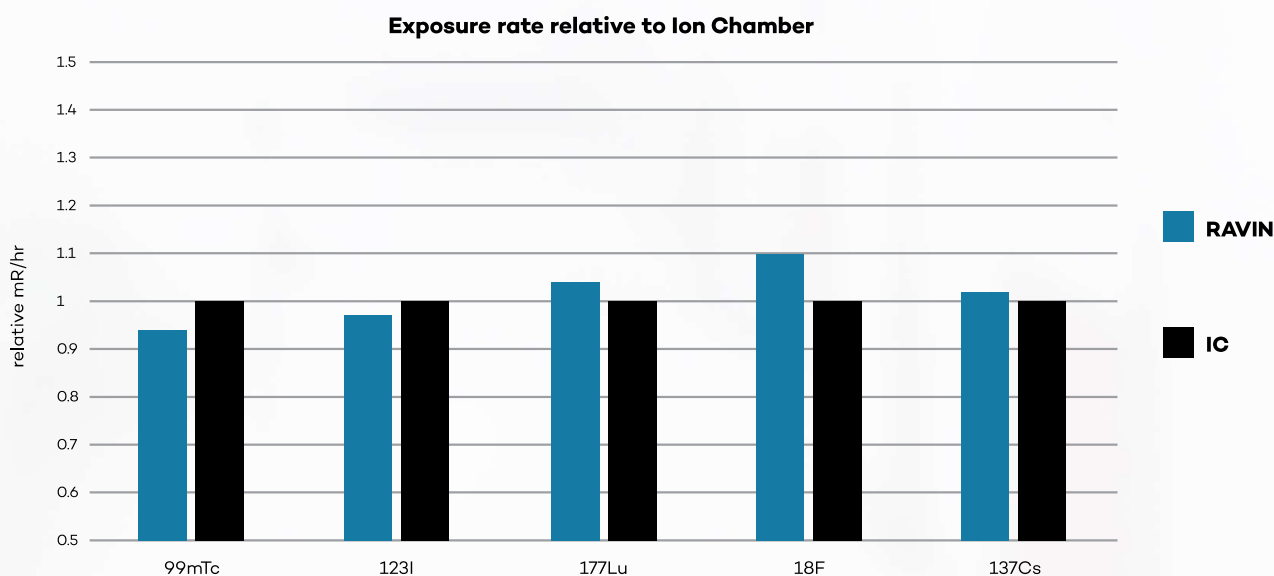




## Radionuclide Therapy

### Dose Rate calibration

- Calibrated dose rate from 140 keV – 662 keV.
- Dose rate accuracy:  $\pm 10\%$  (@662 keV [ $^{137}\text{Cs}$ ]).



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