

Novel Radiation Detectors Developed at Oregon State University



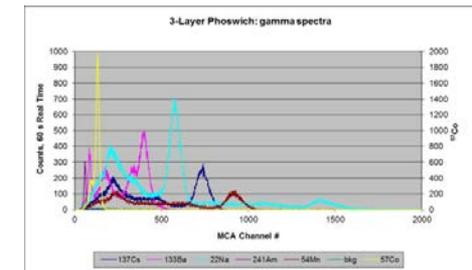
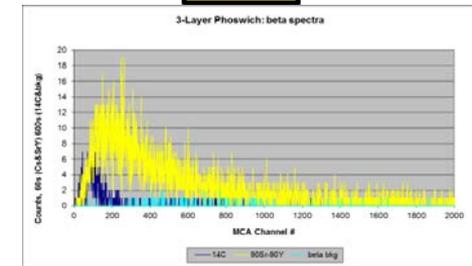
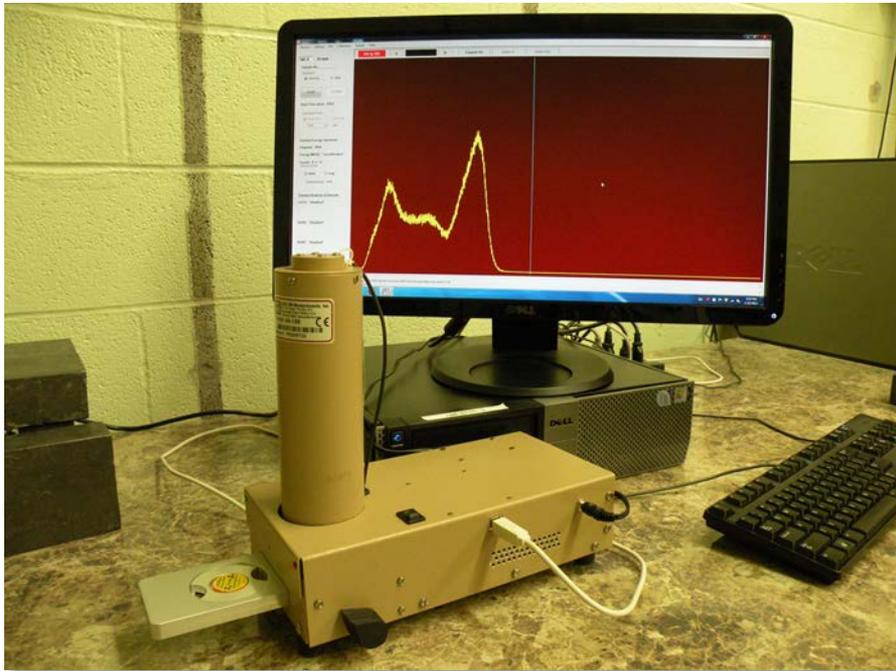
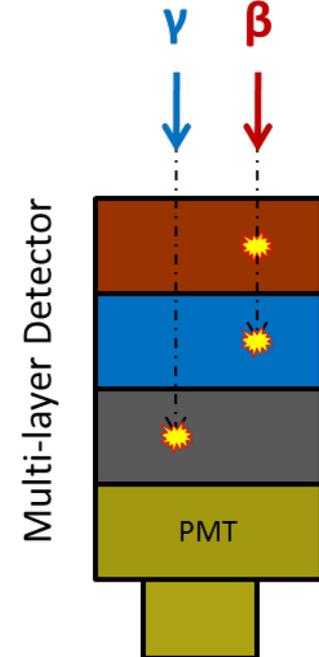
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Detection technologies presented in this presentation are protected by the US patent laws

Phoswich Technology for Simultaneous Beta-Gamma Spectroscopy*

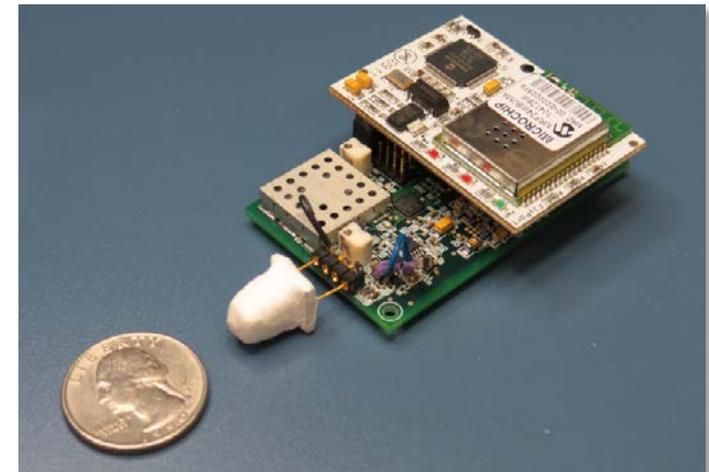
- Collects beta and gamma spectra simultaneously
- Measures ^{90}Sr and ^{137}Cs in one measurement
- Complete system: detector, real-time digital pulse processor, and Graphical User Interface (GUI)



*A. T. Farsoni and D. M. Hamby, "Simultaneous Beta and Gamma Spectroscopy", U.S. Patent #7,683,334, 2010.

Low-cost, Compact, and Wireless Gamma Spectrometer*

- Multi-mode gamma-ray spectroscopy
- Designed for public use
- Compact and low-cost ($\sim < \$200, > 10,000$ units)
- Energy resolution $< 5.9\%$ (662 keV)



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Low-cost, compact, and Wireless Gamma Spectrometer

Department of Nuclear Engineering and Radiation
Health Physics

Oregon State University

*A. T. Farsoni and E. M. Becker, "Low-cost and Low-power Radiation Spectrometer", PCT Patent pending, 2016.

Direction-Sensitive Radiation Detector for Low-Altitude, UAV-based Radiological Source Search*

- Multi-panel direction-sensitive detector designed for small UAVs
- Autonomously guides the UAV toward radioactive sources on the ground
- Maximizes detection efficiency by adjusting the view angle from 0° to 90°
- Compact and light-weight: ~600 g
- Currently under test with small UAV platforms



*A. T. Farsoni and E. M. Becker, "A System and Method for Locating Radiation Sources", PCT Patent pending, 2015.