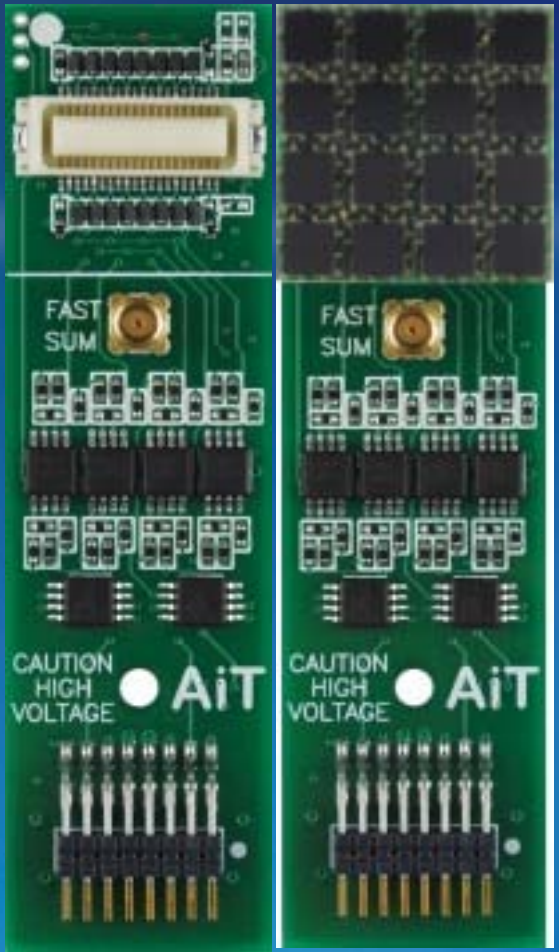


June 08, 2013

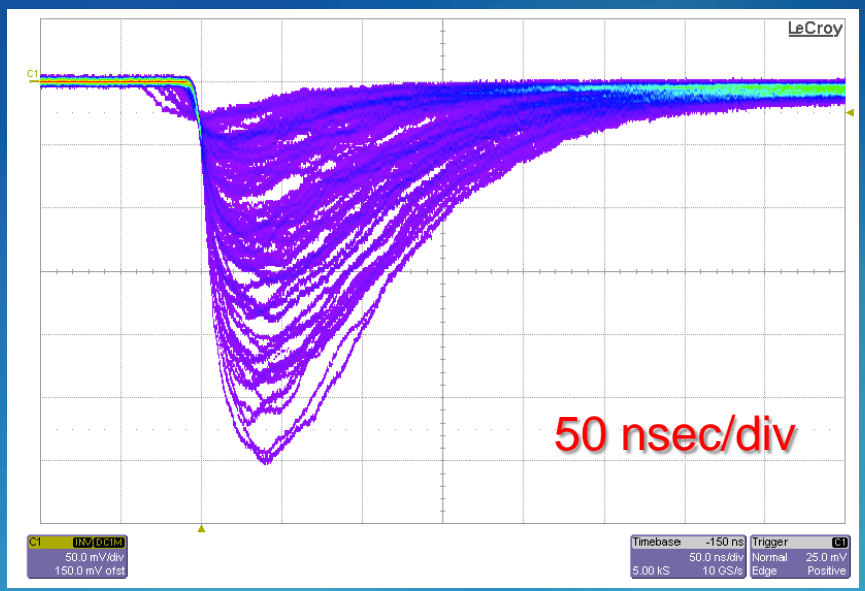
SensL ArrayB-30035-16P-PCB Preliminary Results



SensL ArrayB-30035-16P-PCB



The SiPM arrays is mounted on a stand-off connector, as shown in this side-view picture.



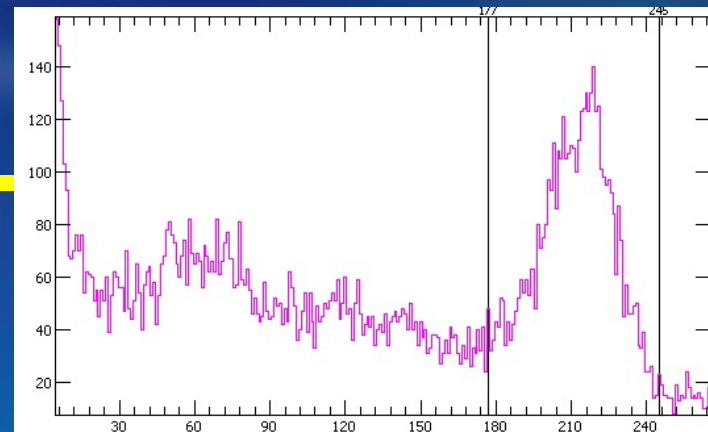
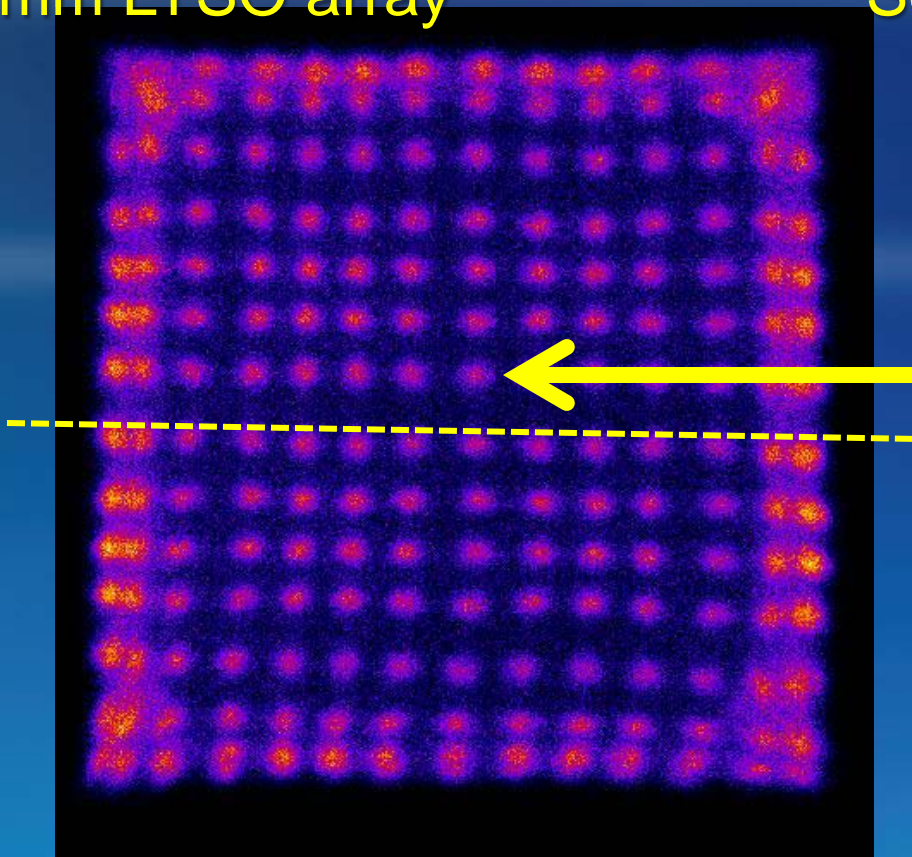
Sum of four position signals.

Before and after connecting the SiPM array to the 4ch charge division readout board.

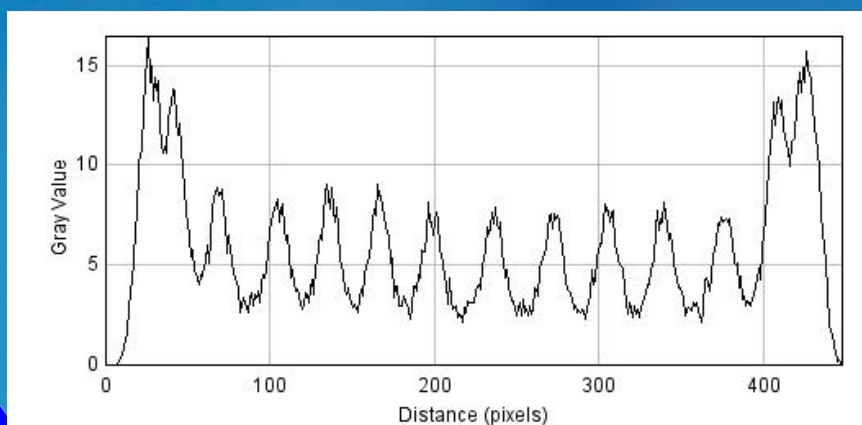


(Photographs and scope pictures courtesy of James Proffitt, AiT Instruments).



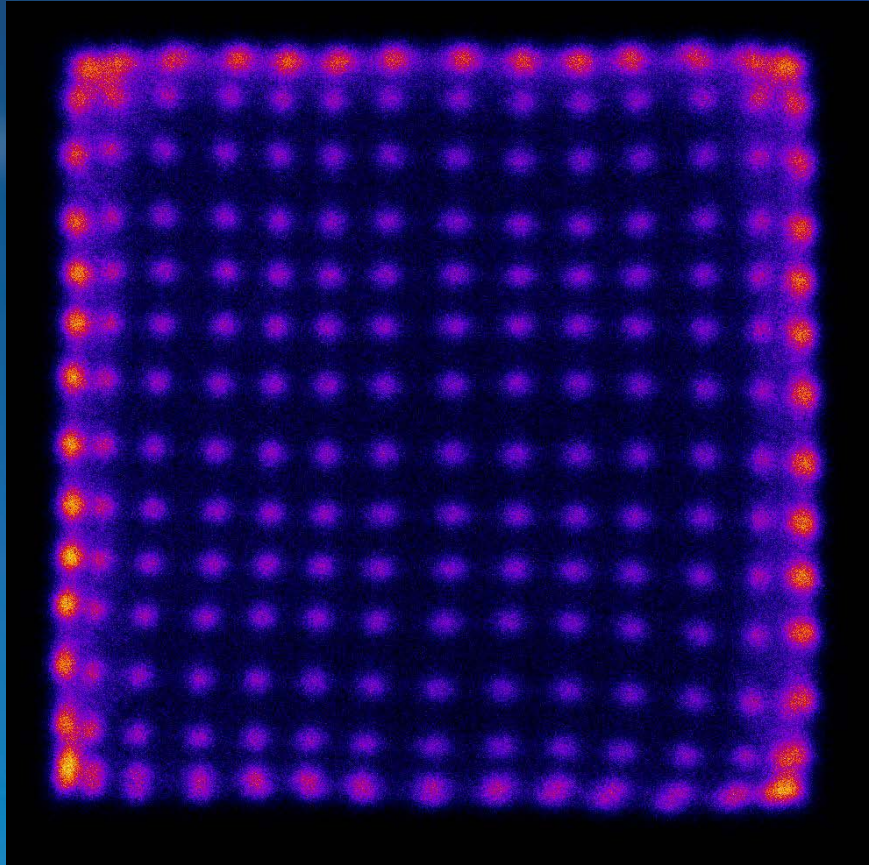


Energy pixel , FWHM 12.1% @ 511 keV

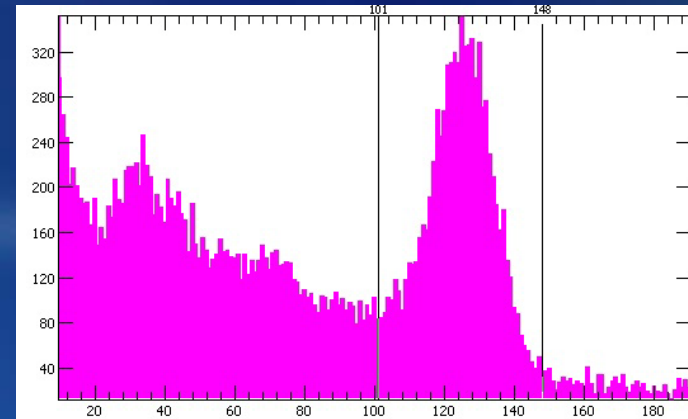


Raw image, single pixel energy spectrum example, and profile through one pixel row, using 1x1x10mm LYSO array,

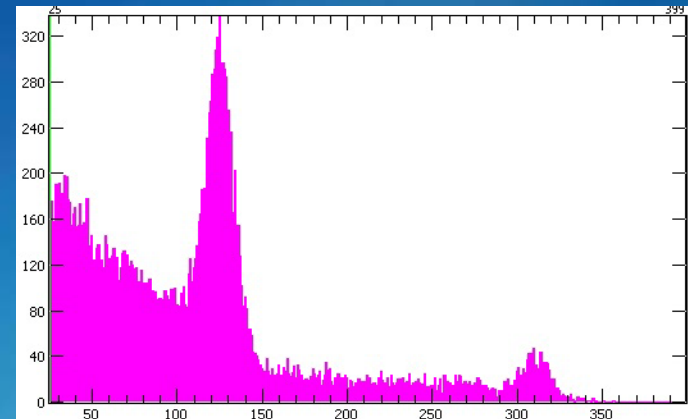
1mm LYSO array-cont'd



SensL ArrayB-30035-16P-PCB



Na22 energy spectrum from one 1mm pixel. FWHM 15.1% @ 511 keV.



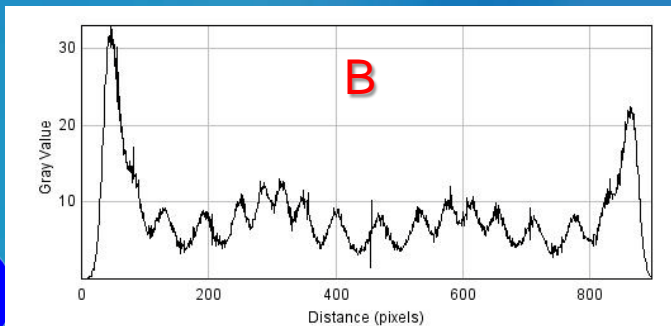
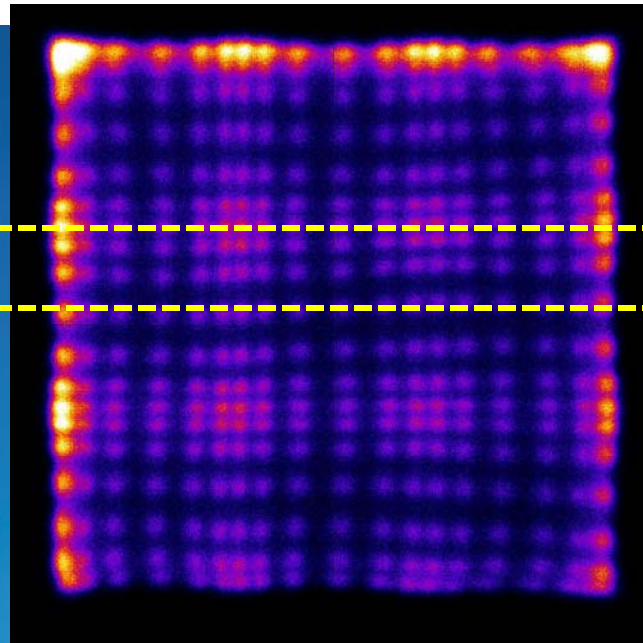
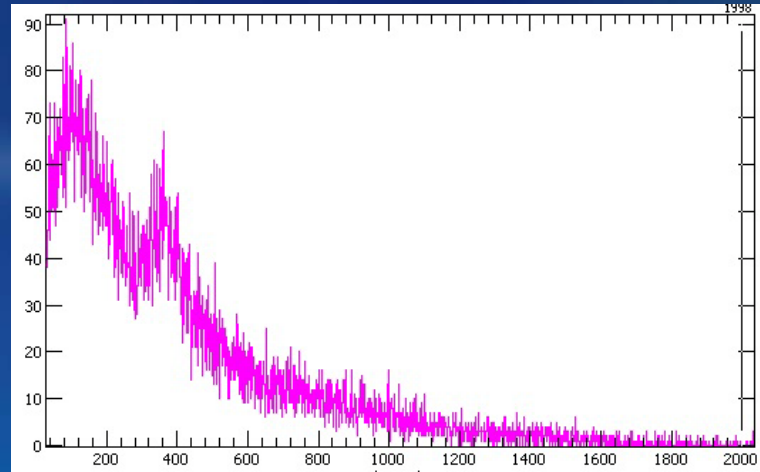
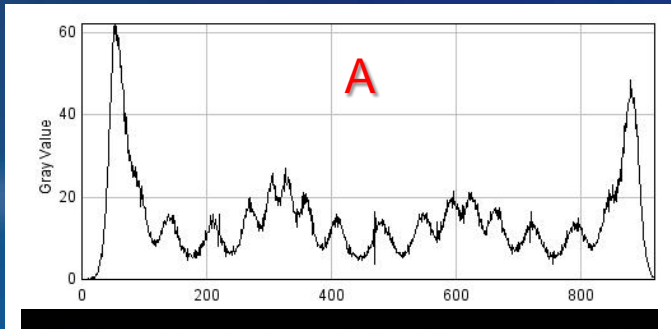
Na22 energy spectrum from another central pixel. FWHM 13.9% @ 511 keV. Measured ratio of peaks 1274/511 keV = 2.48.

Raw image, examples of pixel energy spectra example, 1x1x10mm LYSO array at lower bias/gain. Bias:30.9 Volt.



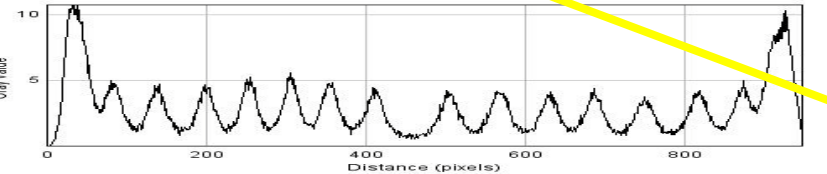
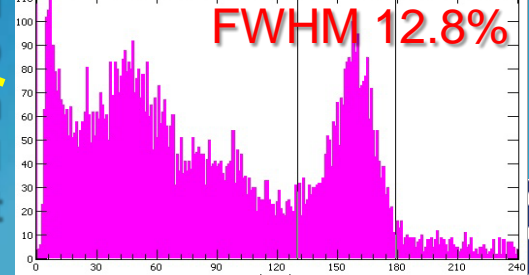
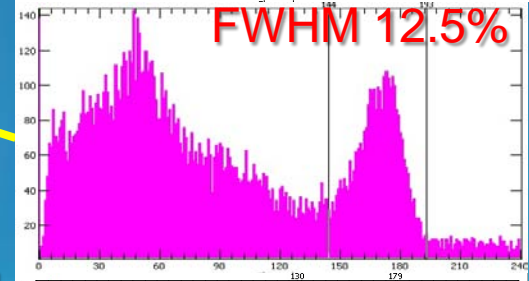
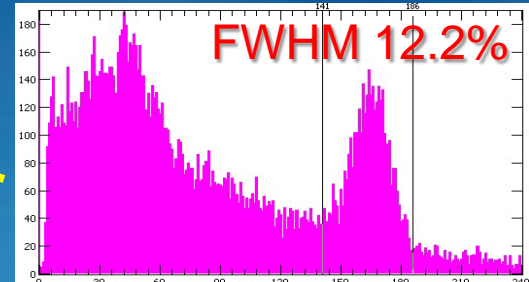
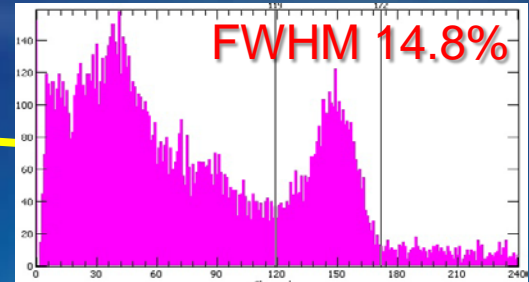
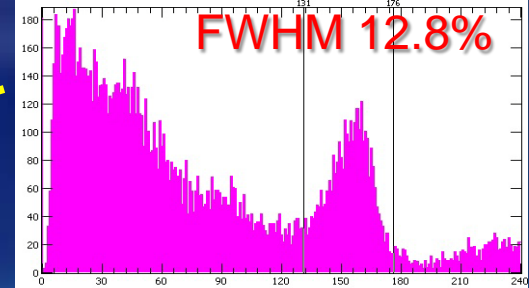
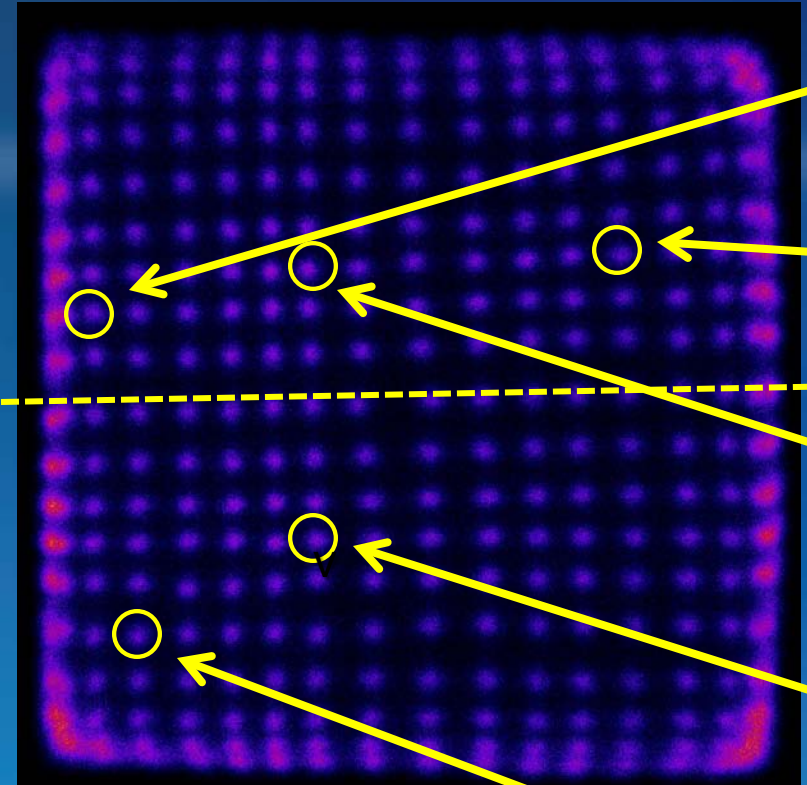
0.7mm LYSO array

SensL ArrayB-30035-16P-PCB



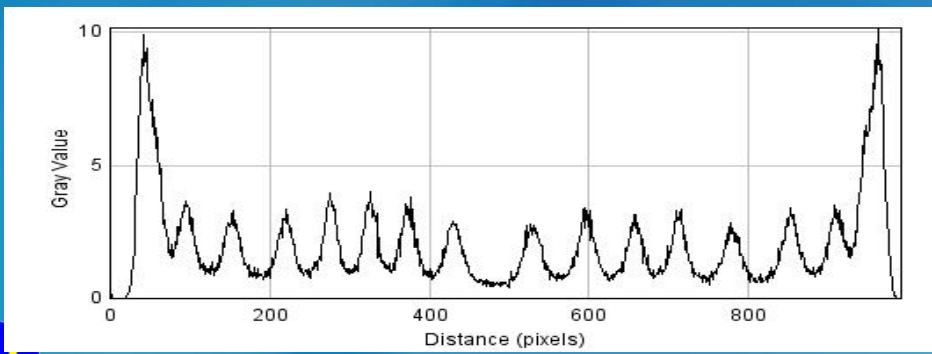
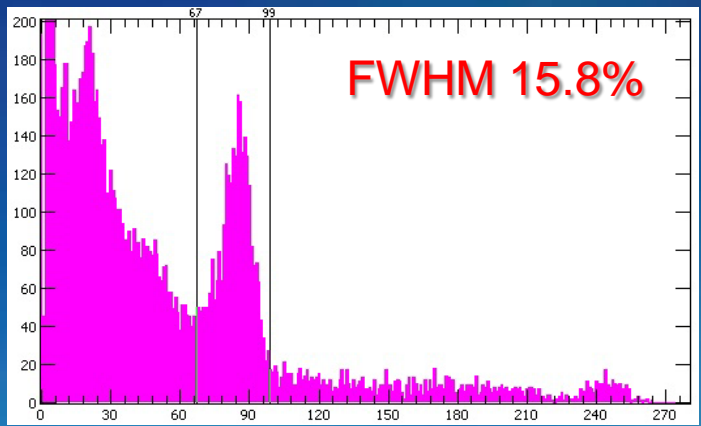
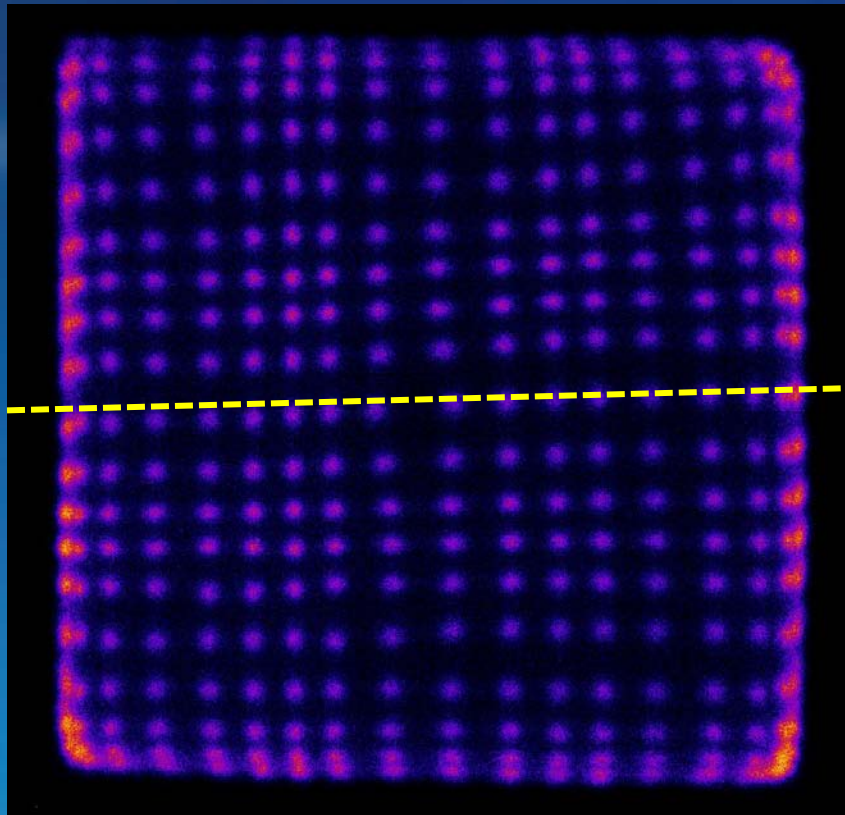
Raw image, example of single pixel energy spectrum, and two profiles through pixel rows, using 0.7x0.7x10mm LYSO array, optimized for DOI operation. 3mm acrylic coupling window inserted between the LYSO array and the SiPM array using wet optical grease coupling. Energy spectrum is not showing strong 511 keV peak due to (intentional) light signal variation with depth in such an array. Bias:30.9 Volt.

SensL ArrayB-30035-16P-PCB 0.8mm LYSO array



Raw image, example of single pixel energy spectrum, and two profiles through pixel rows, using 0.8x0.8x3mm LYSO array. Five examples of energy spectra are shown from across the surface. 3mm acrylic coupling window inserted between the LYSO array and the SiPM array using wet optical grease coupling. Bias:30.9 Volt.

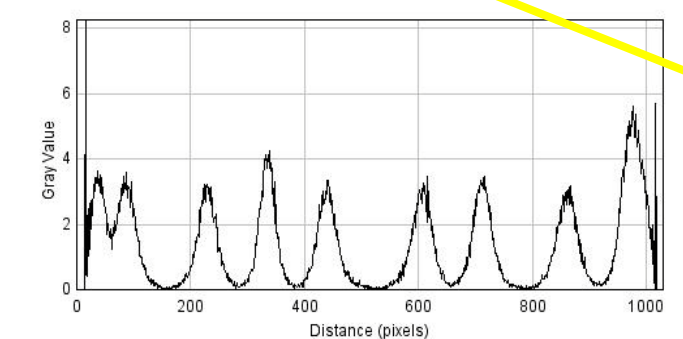
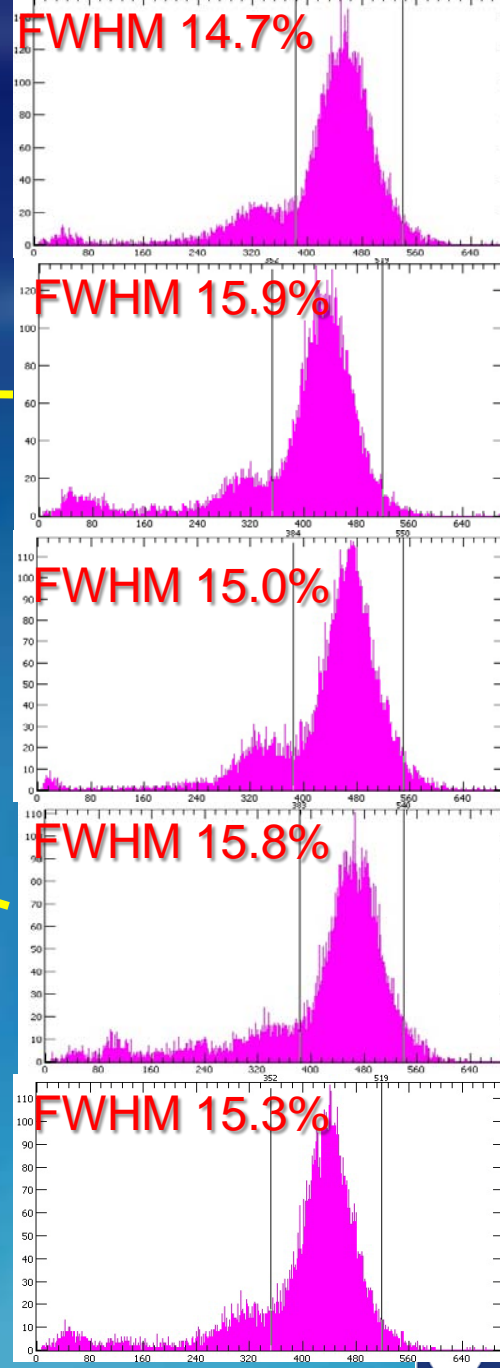
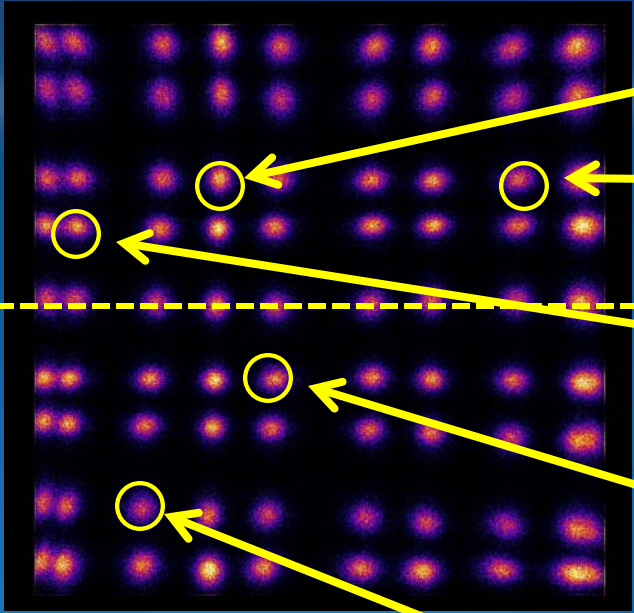




Raw image, row profile and example of a single pixel energy spectrum, at a lower bias of 29.4 Volt. FWHM = 15.8% @ 511 keV.

SensL ArrayB-30035-16P-PCB

1.5mm NaI(Tl) array



Raw image, examples of five single pixel energy spectra, and a profile through a pixel row, for the 1.5x1.5x6mm NaI(Tl) array and a Co-57 122 keV gamma source. All FWHM values are @ 122 keV. Bias @30.9 Volt.

