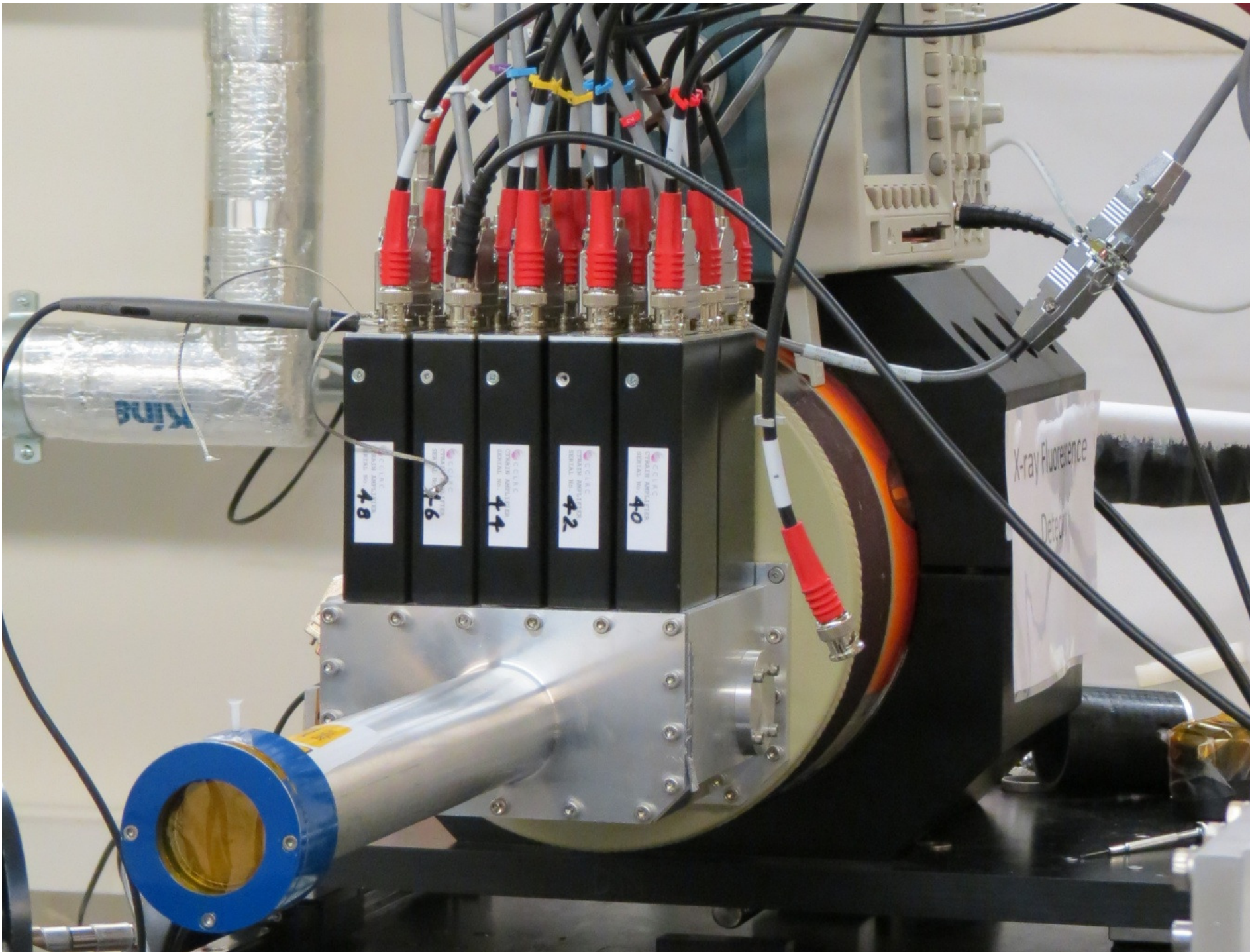
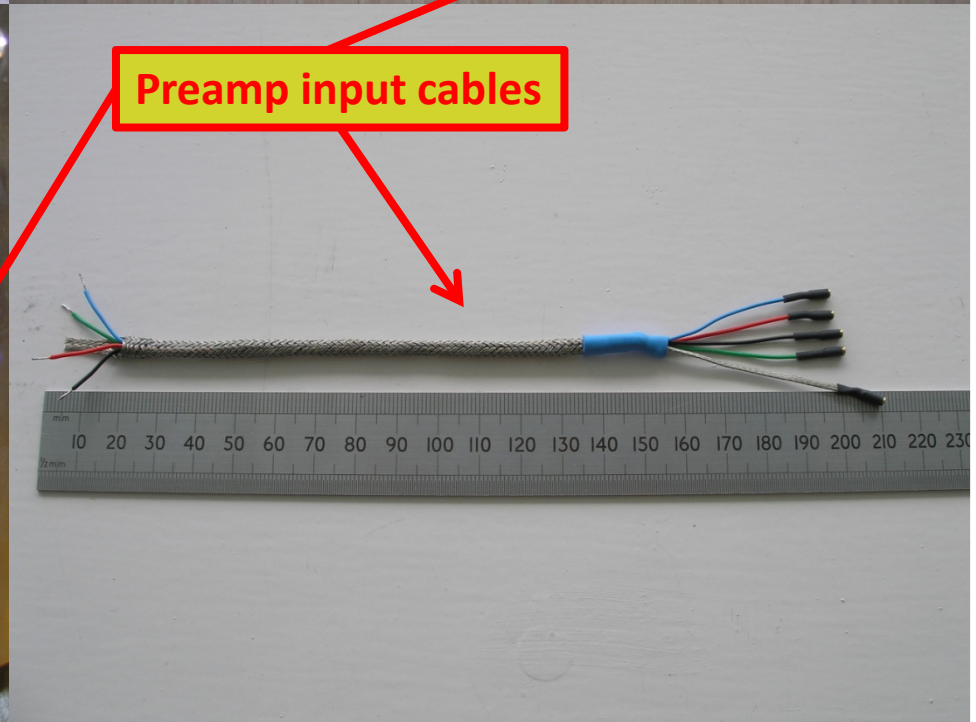
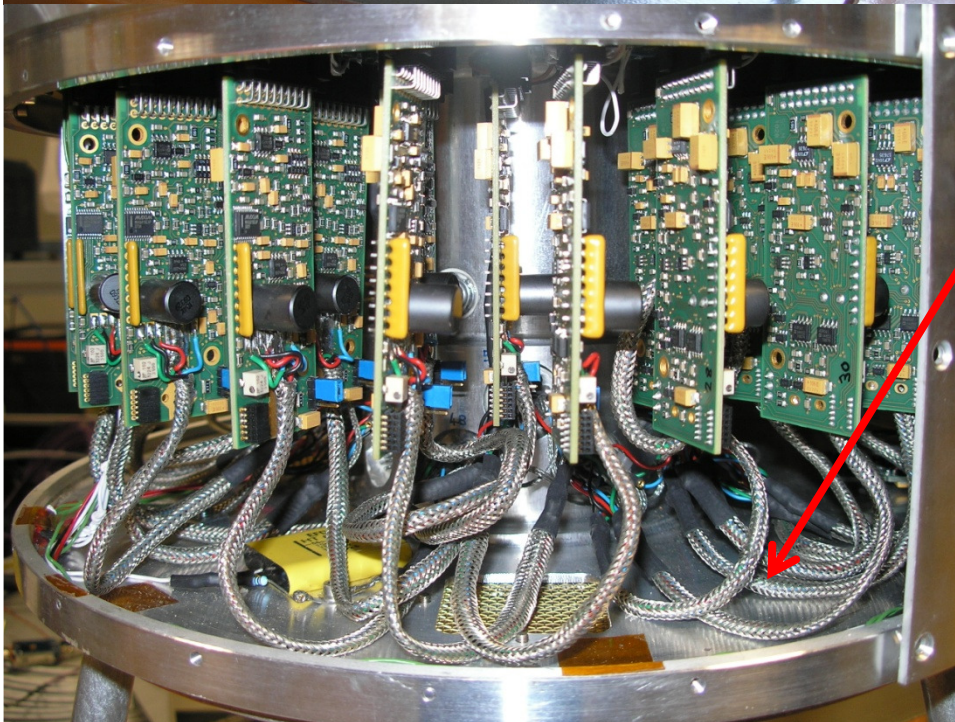
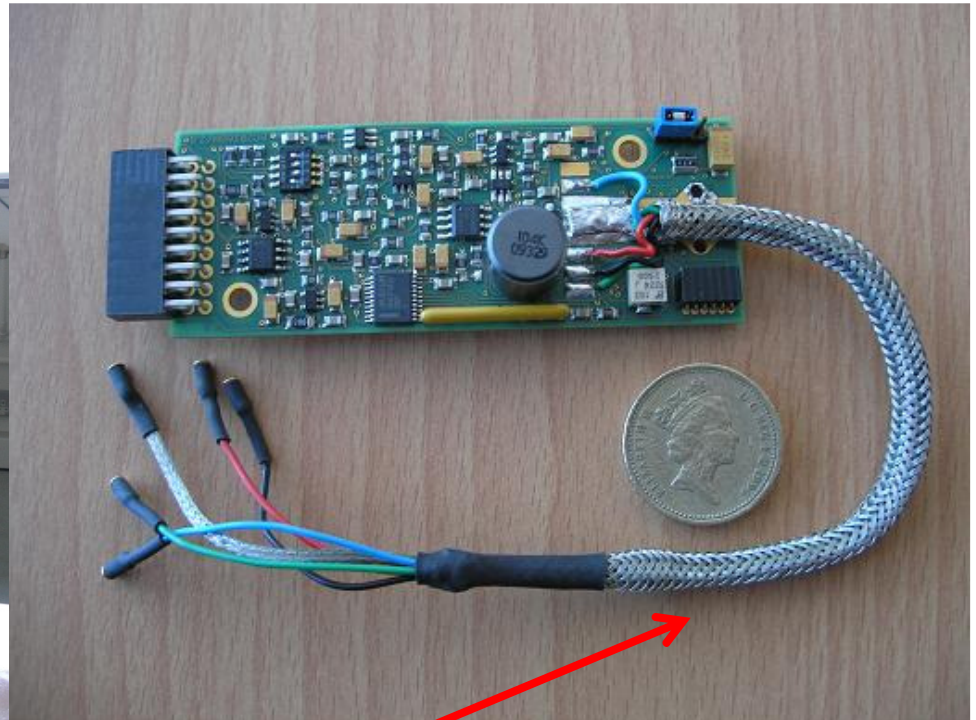


Spectroscopy detector systems at Diamond Light Source

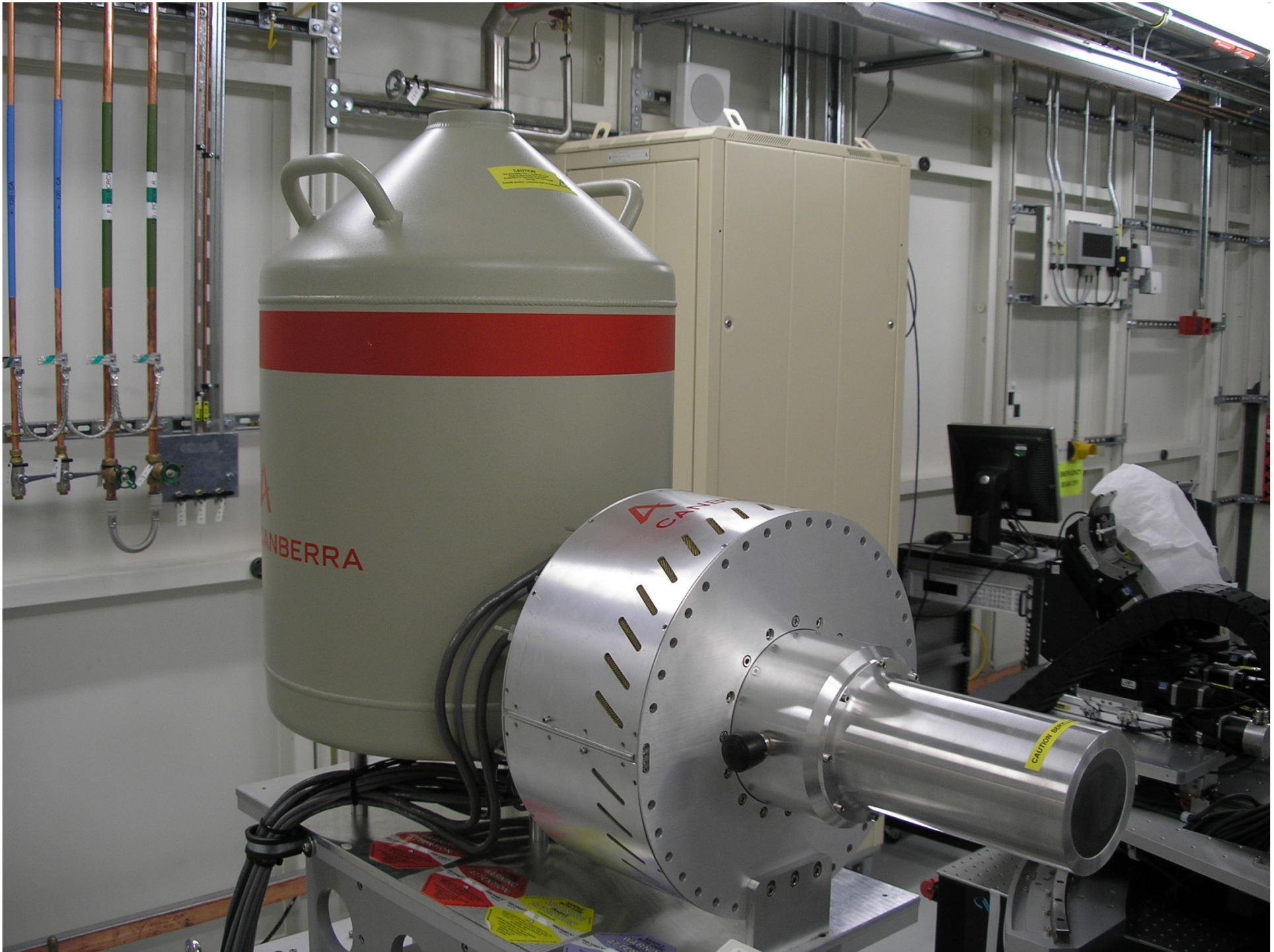
Nicola Tartoni

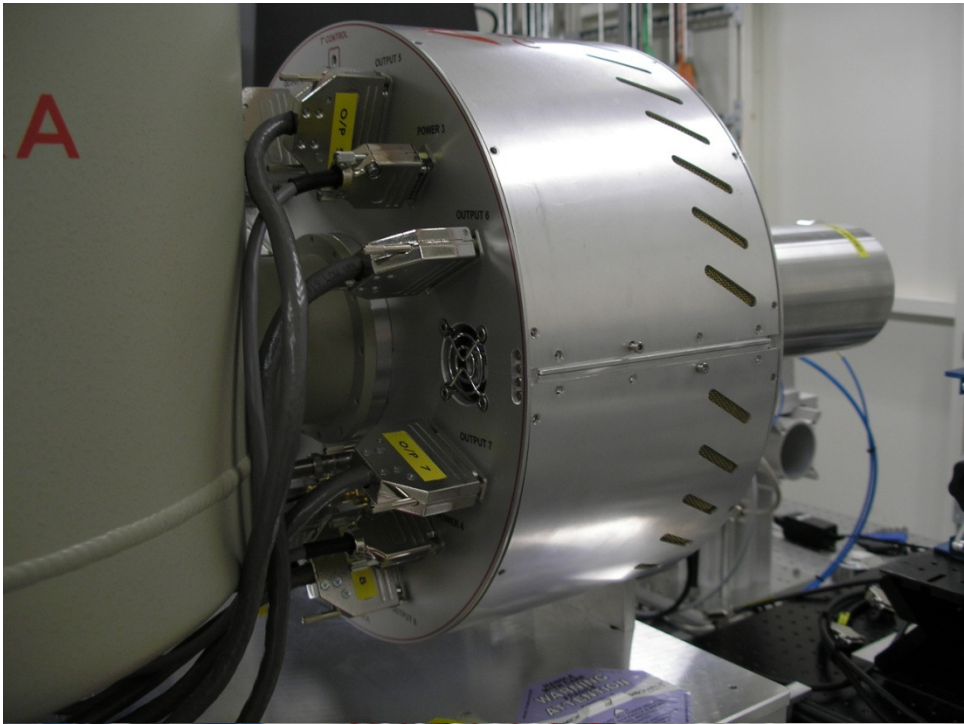
Paris, 16th of March 2015



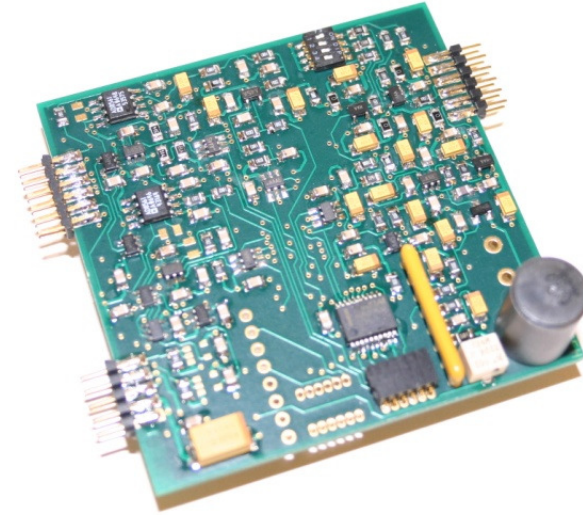


Preamp input cables

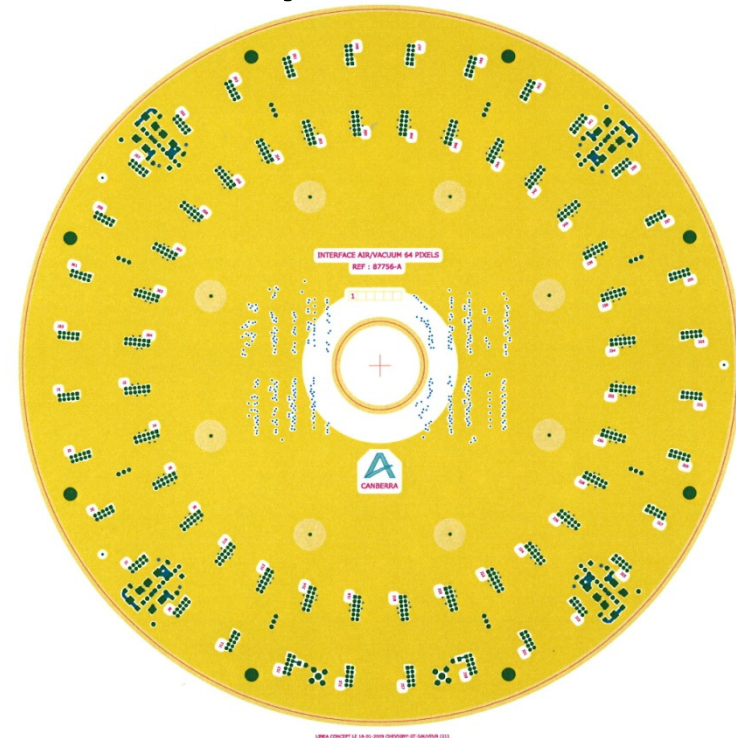
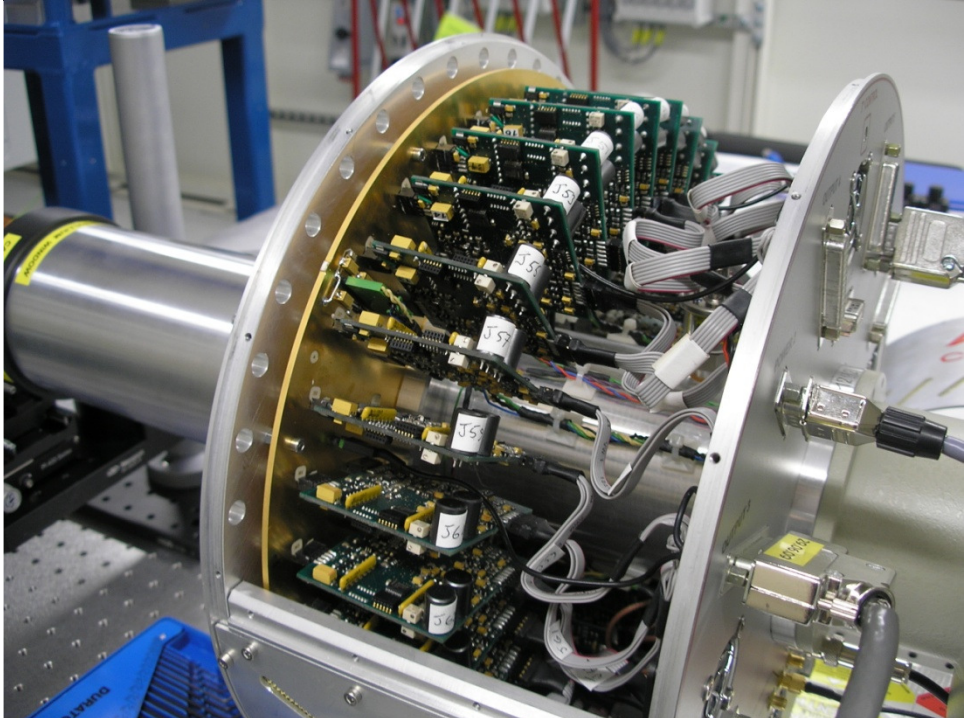




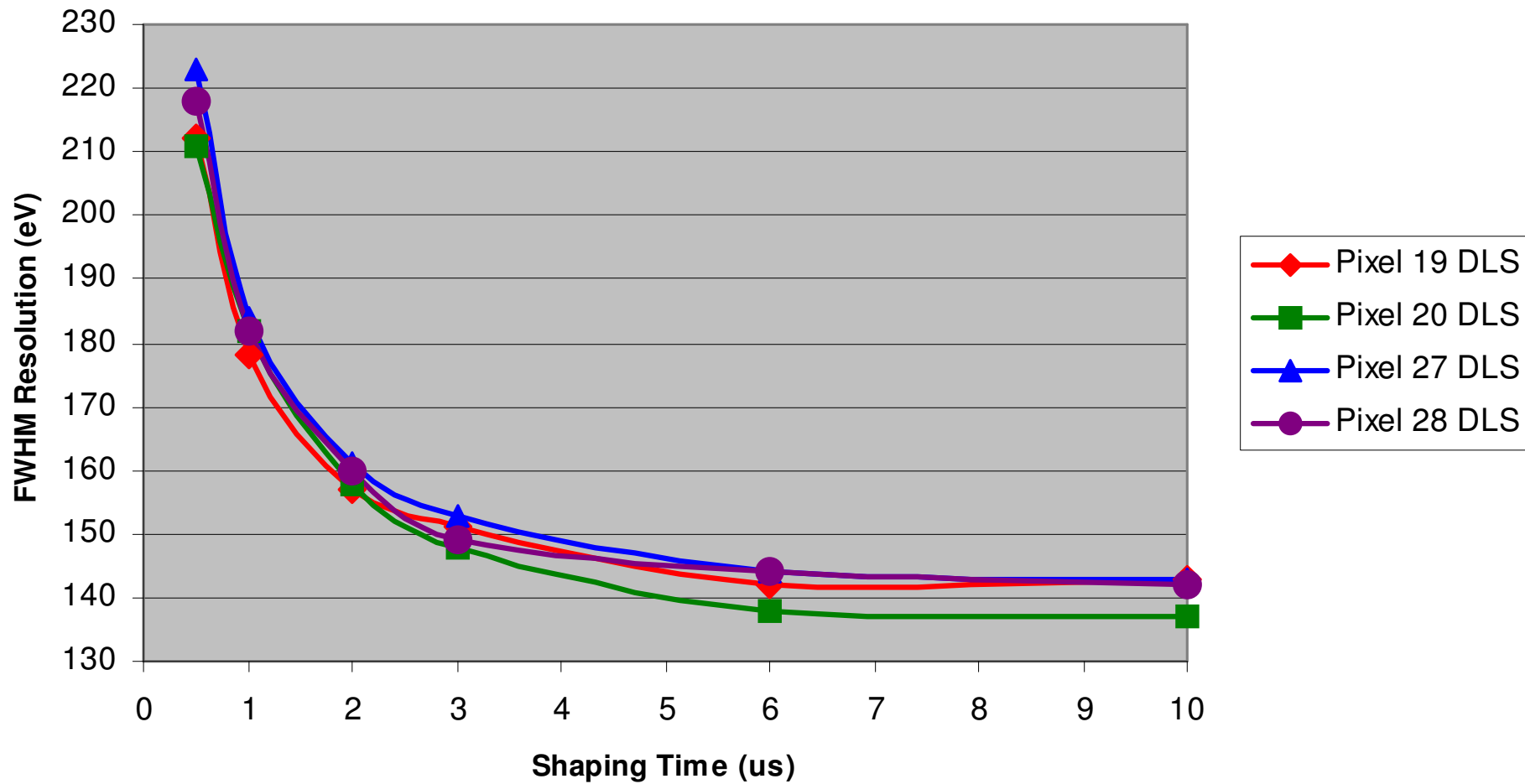
Dual channel preamplifier



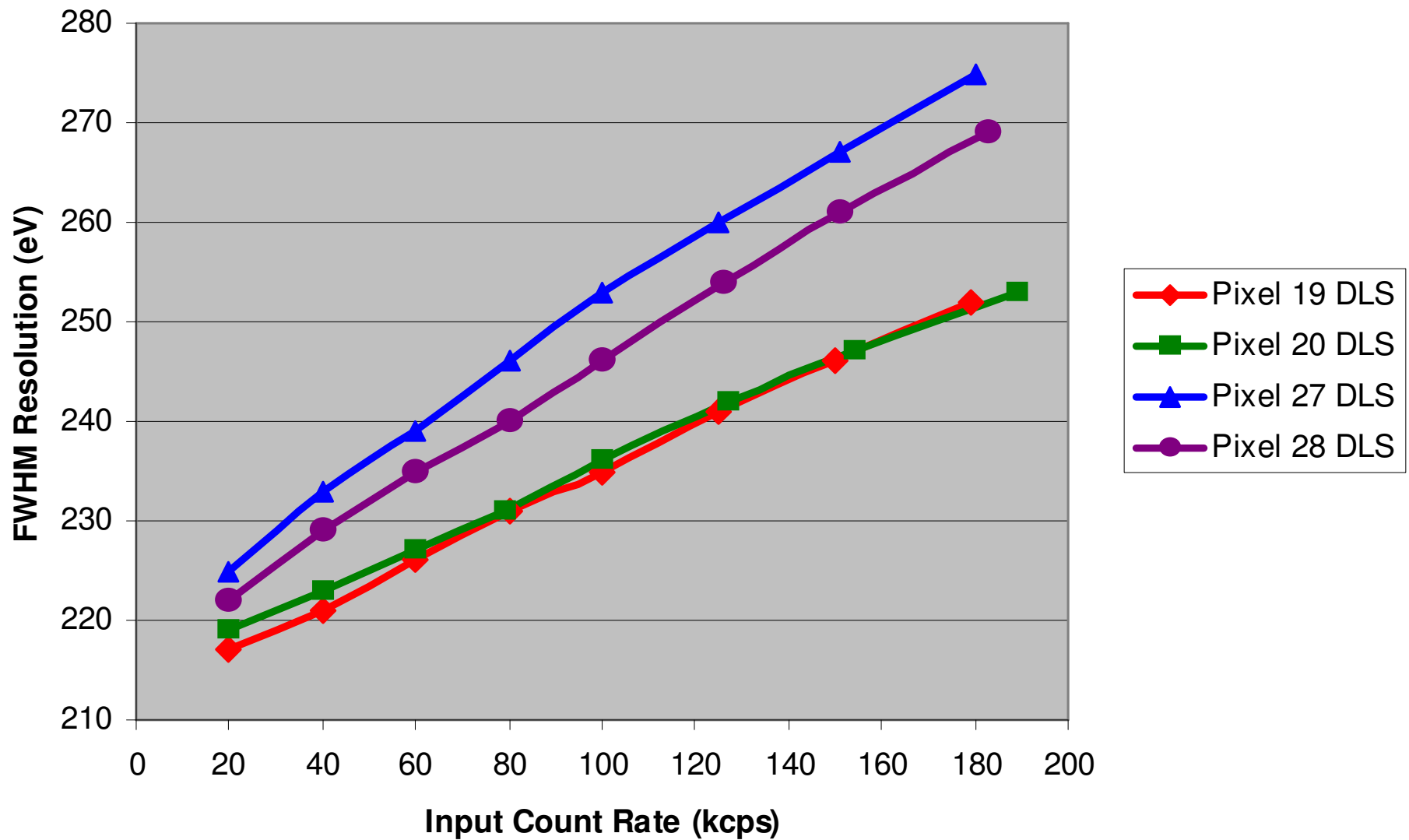
Preamps carrier board



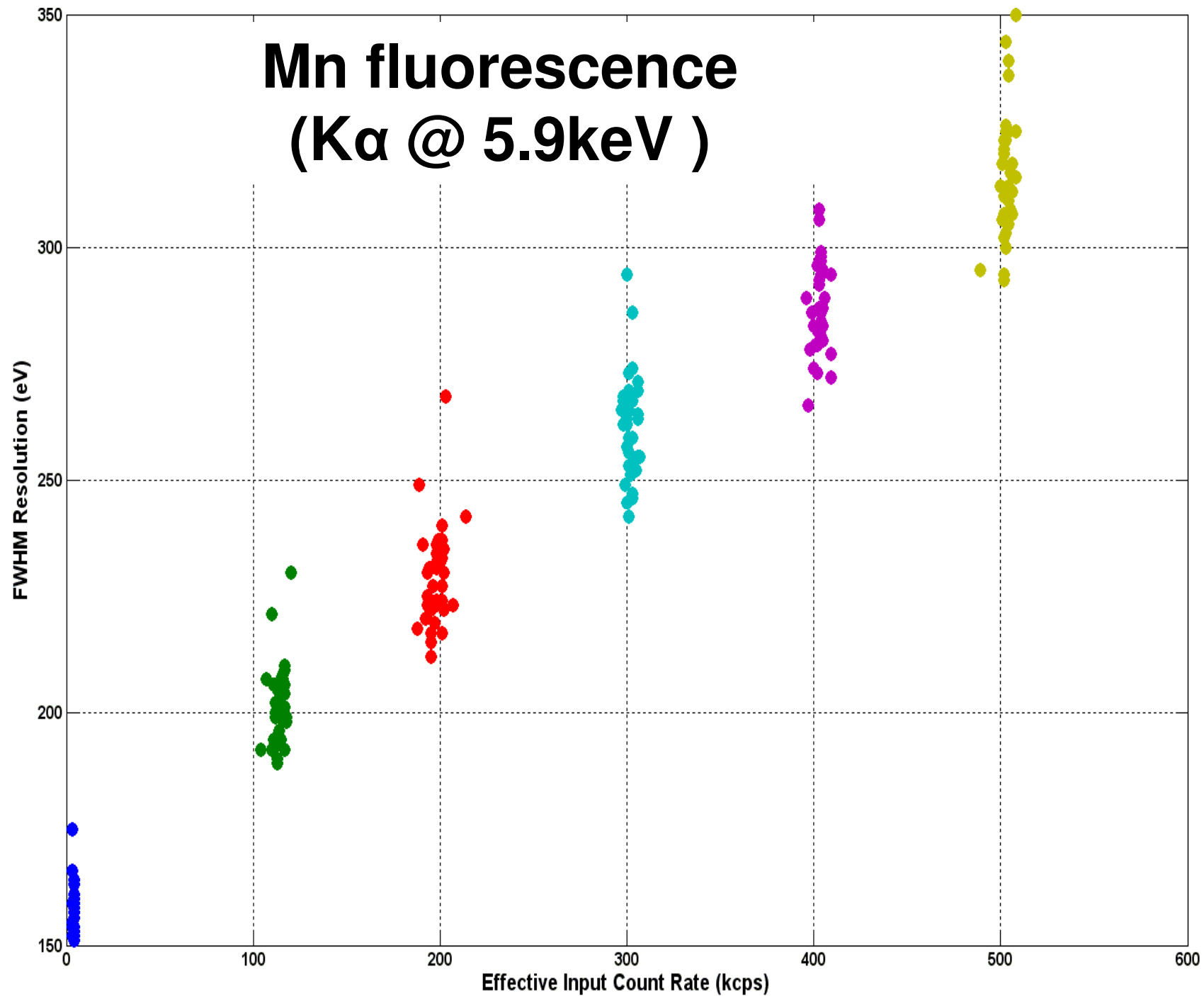
Resolution v Shaping Time: DLS Preamps Pixels 19,20,27,28 @ 3kcps input count rate



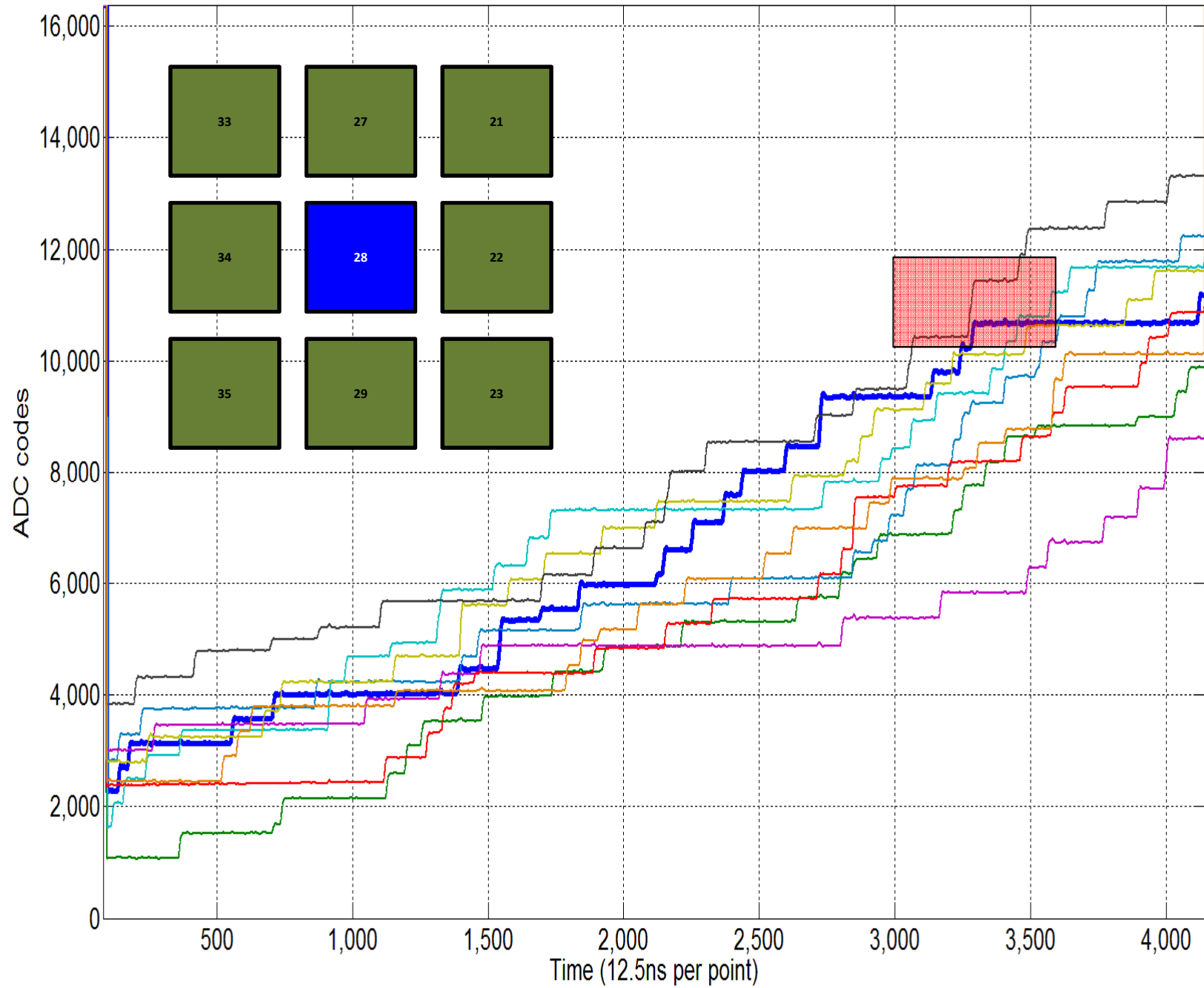
Resolution v Input Count Rate: DLS Preamps Pixels 19,20,27,28 @ 0.5us Shaping Time



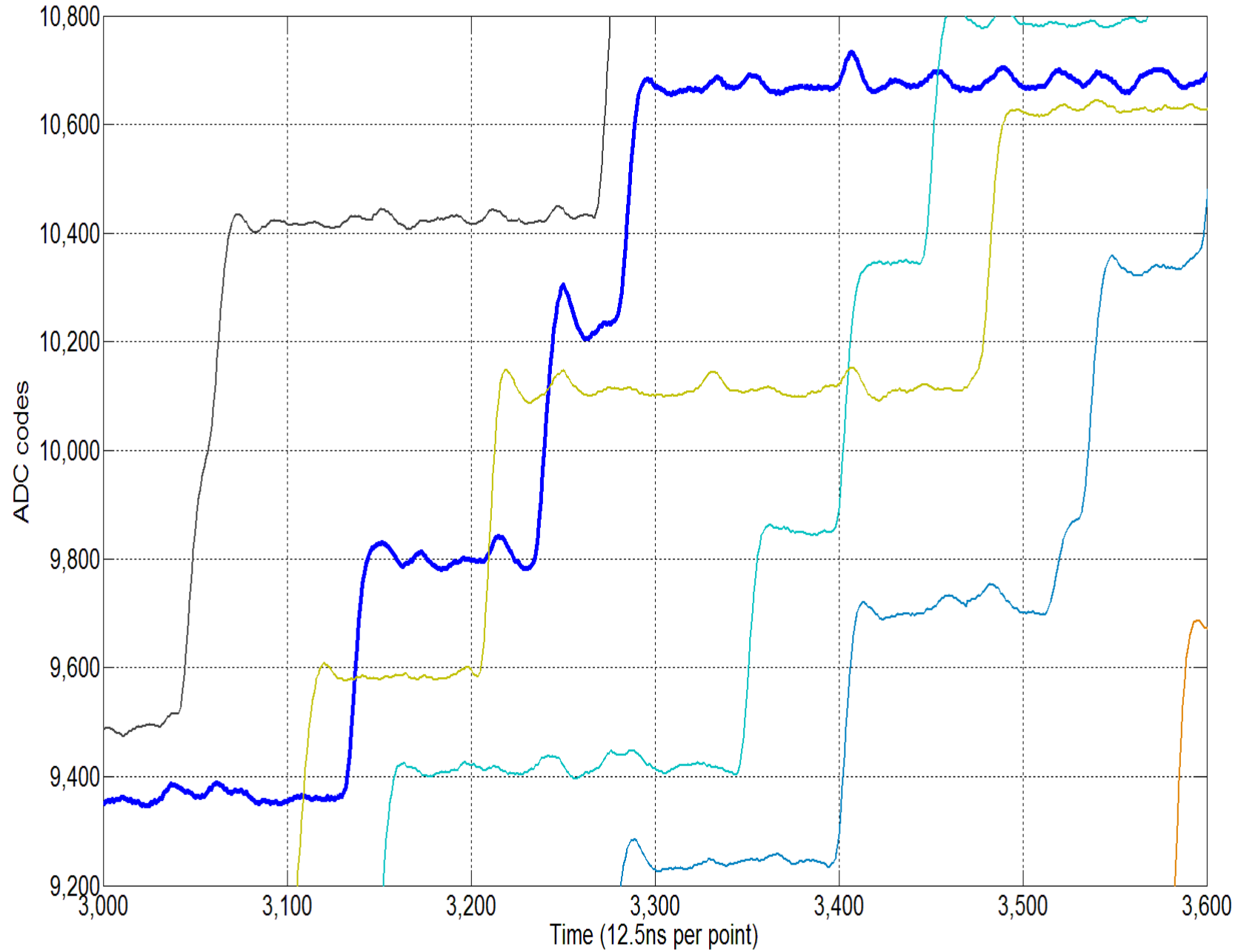
Mn fluorescence (K α @ 5.9keV)



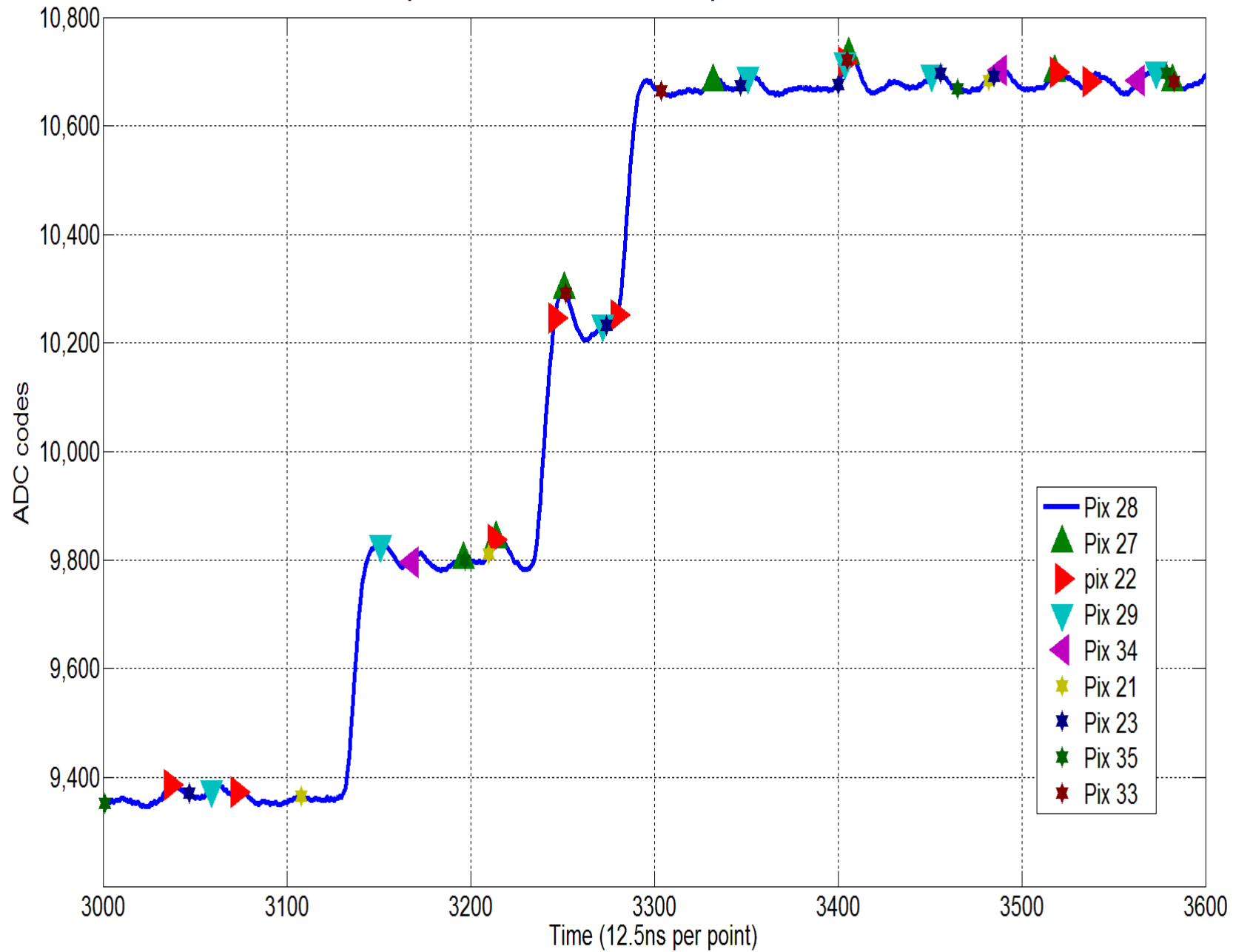
HPGe36 / Xspress2 Pixel 28 and neighbours: Full Raw Ramp



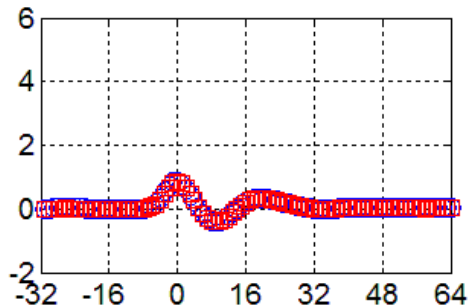
HPGe36 / Xspress2 Pixel 28 and neighbours: Partial Raw Ramp



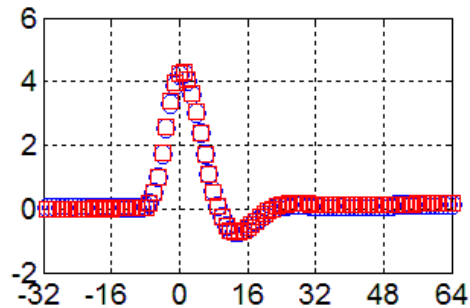
HPGe36 / Xspress2 Pixel 28: Partial Raw Ramp Xtalk event locations identified



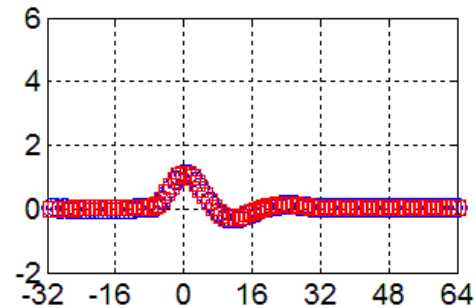
From pixel 33



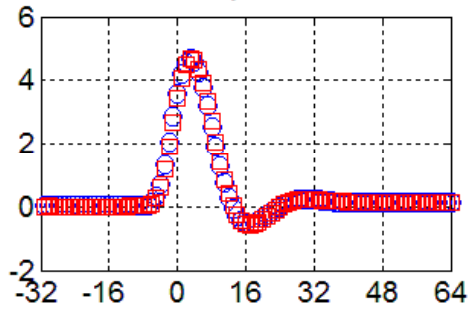
From pixel 27



From pixel 21

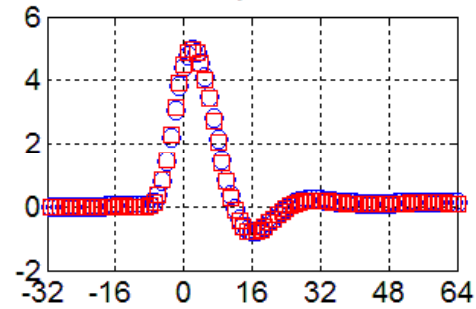


From pixel 34

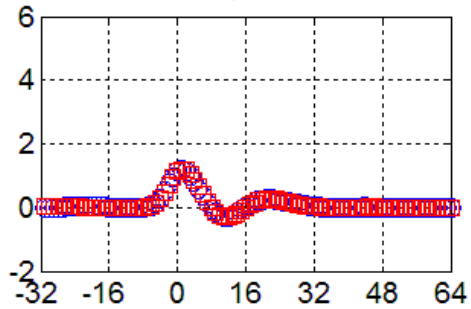


Effect on
pixel 28

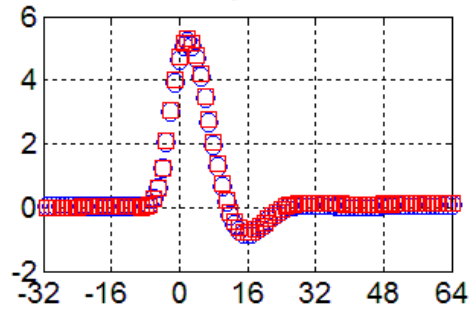
From pixel 22



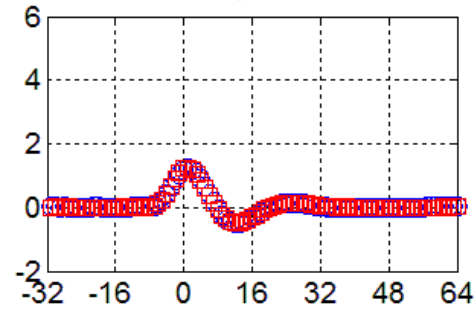
From pixel 35



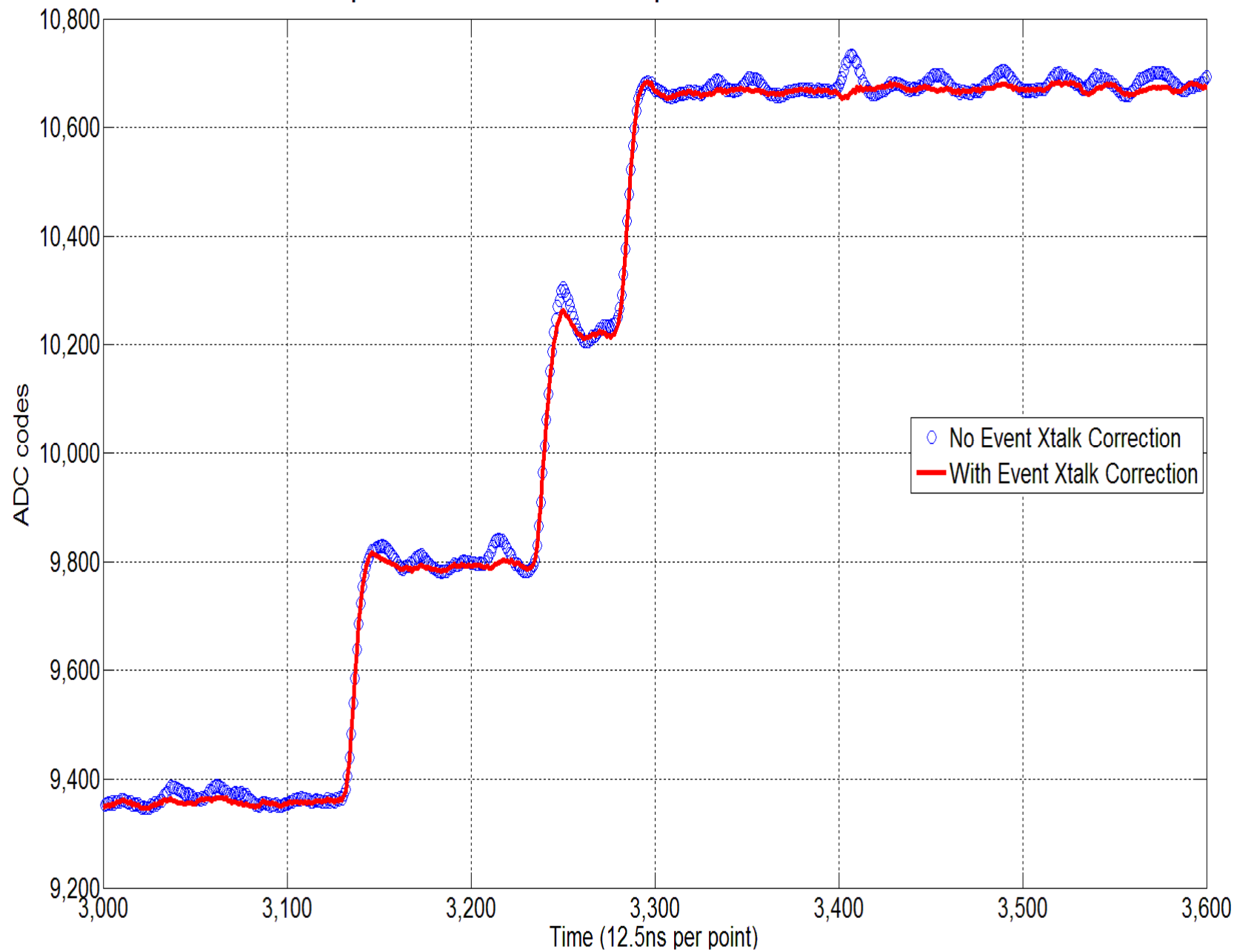
From pixel 29



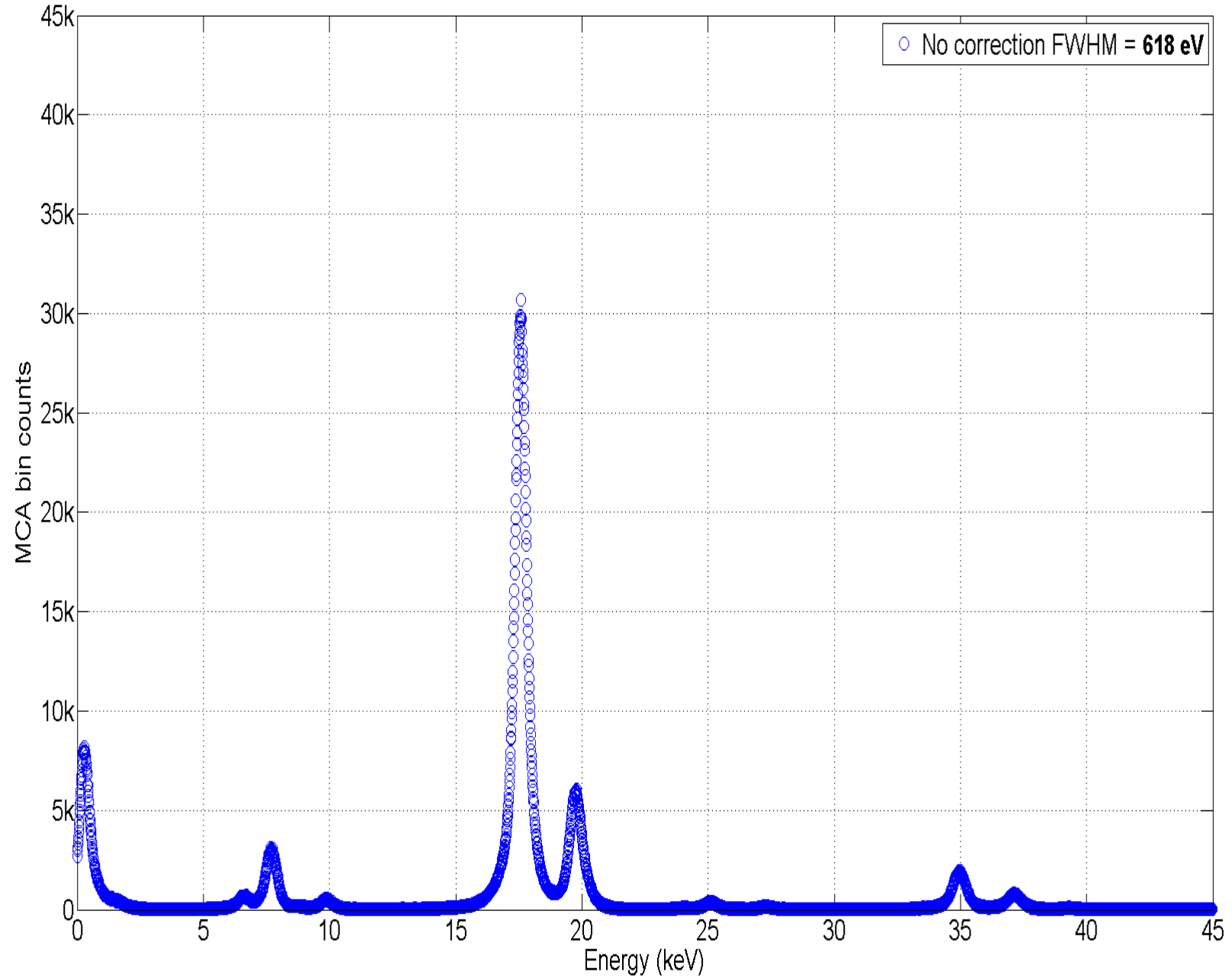
From pixel 23



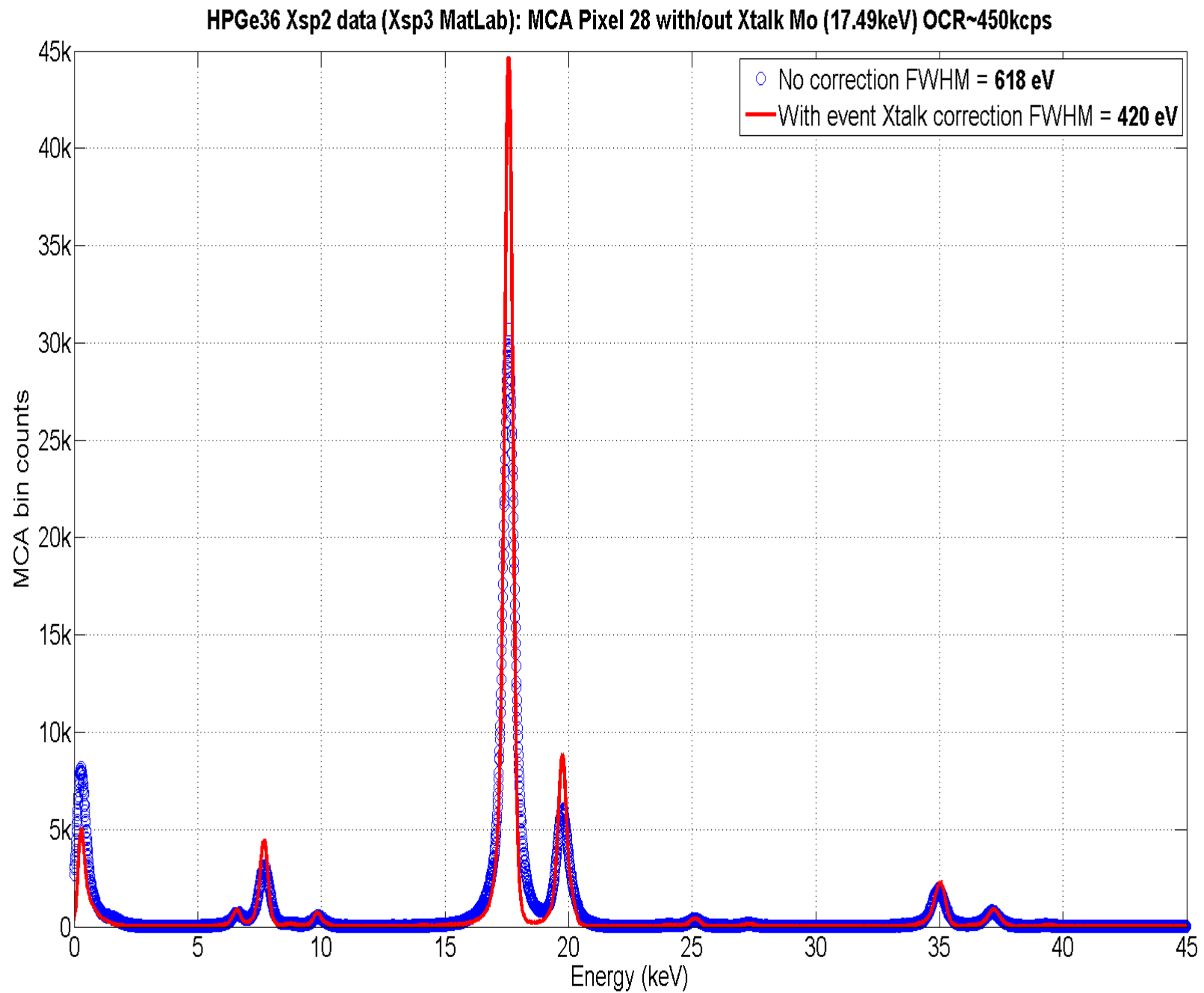
HPGe36 / Xspress2 Pixel 28: Partial Raw Ramp WITH and WITHOUT Event Xtalk Correction



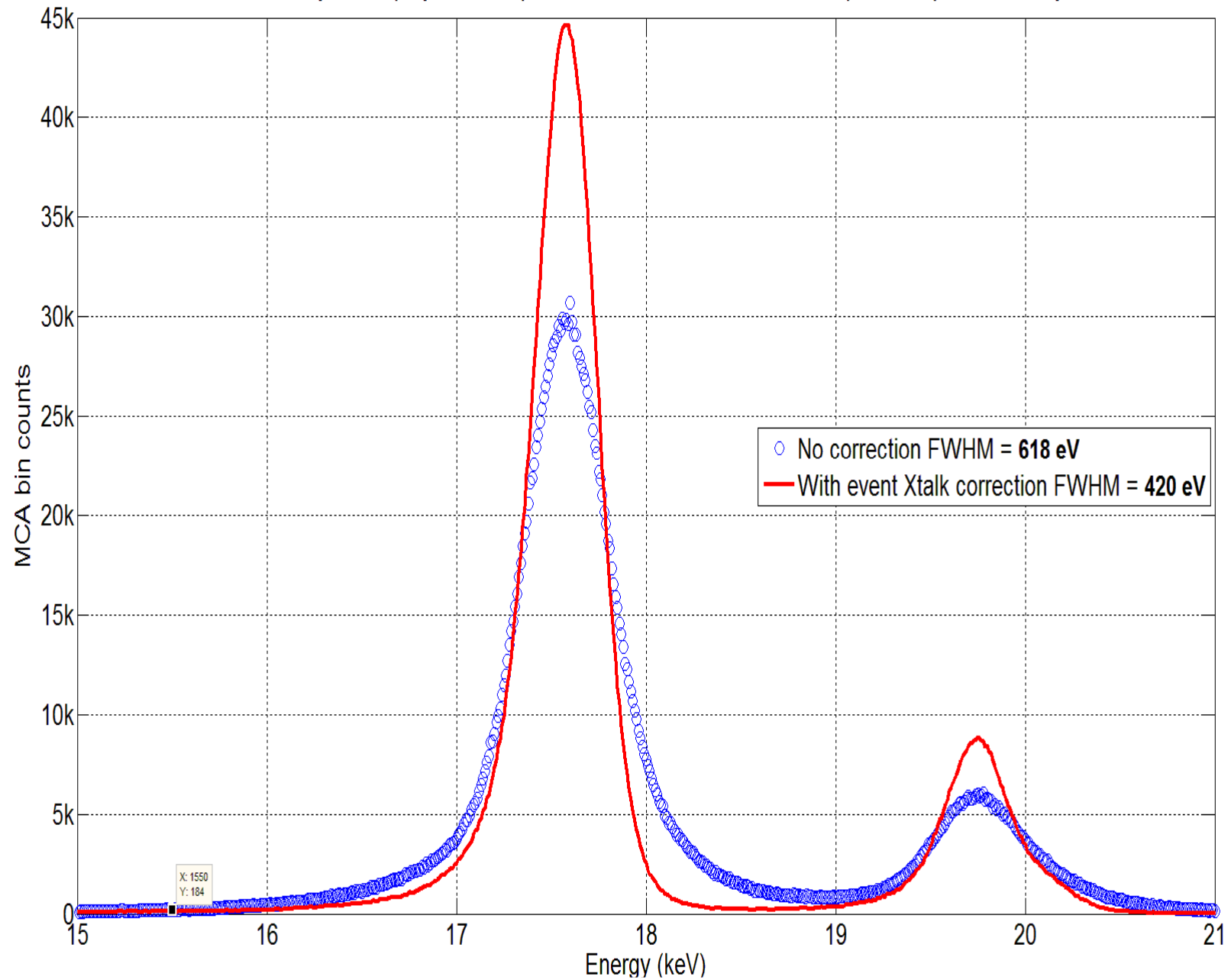
HPGe36 Xsp2 data (Xsp3 MatLab): MCA Pixel 28 without Xtalk Mo (17.49keV) OCR~450kcps



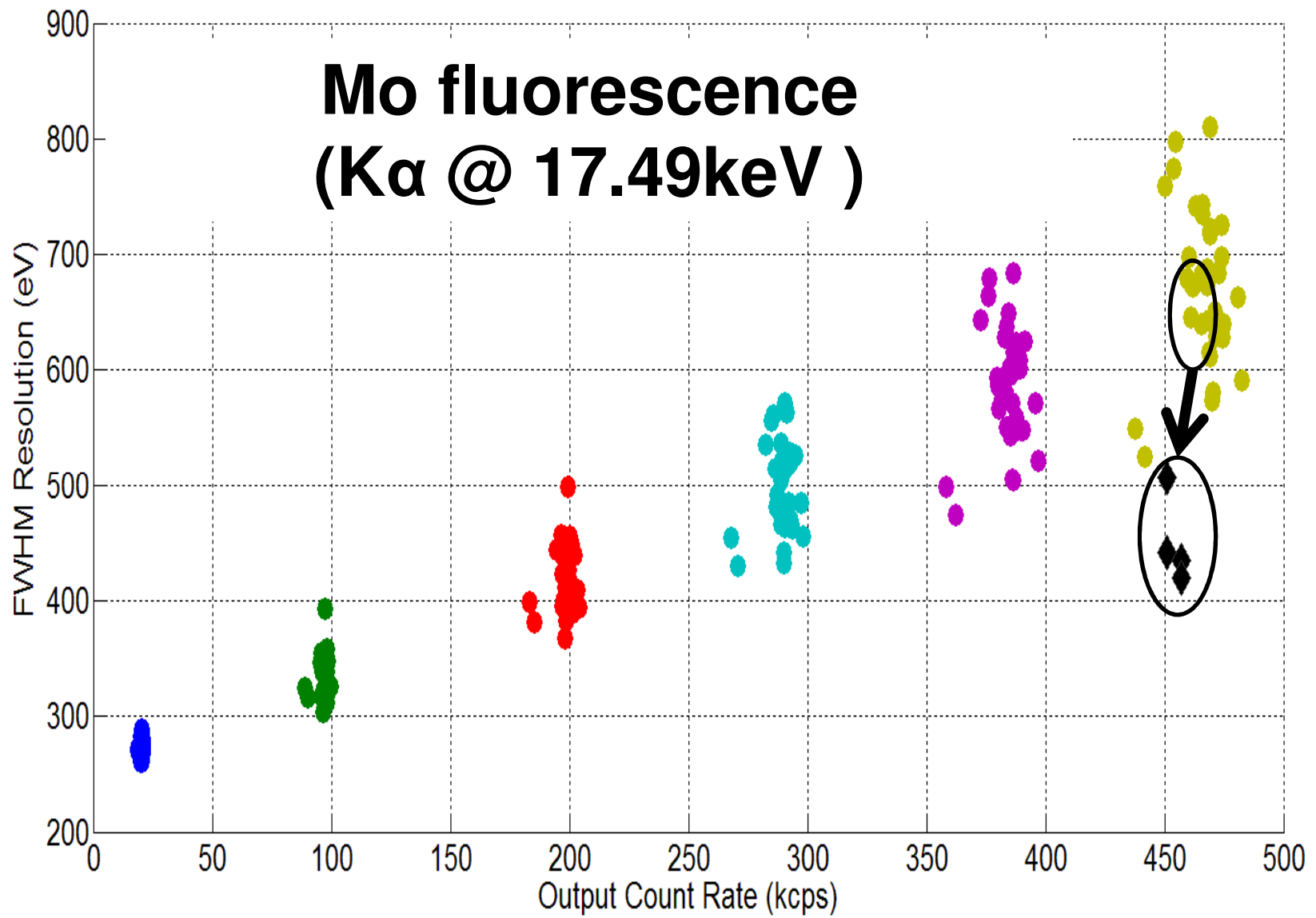
Pixel 28 MCA with and without Xtalk correction (Mo 450kcps) - 2



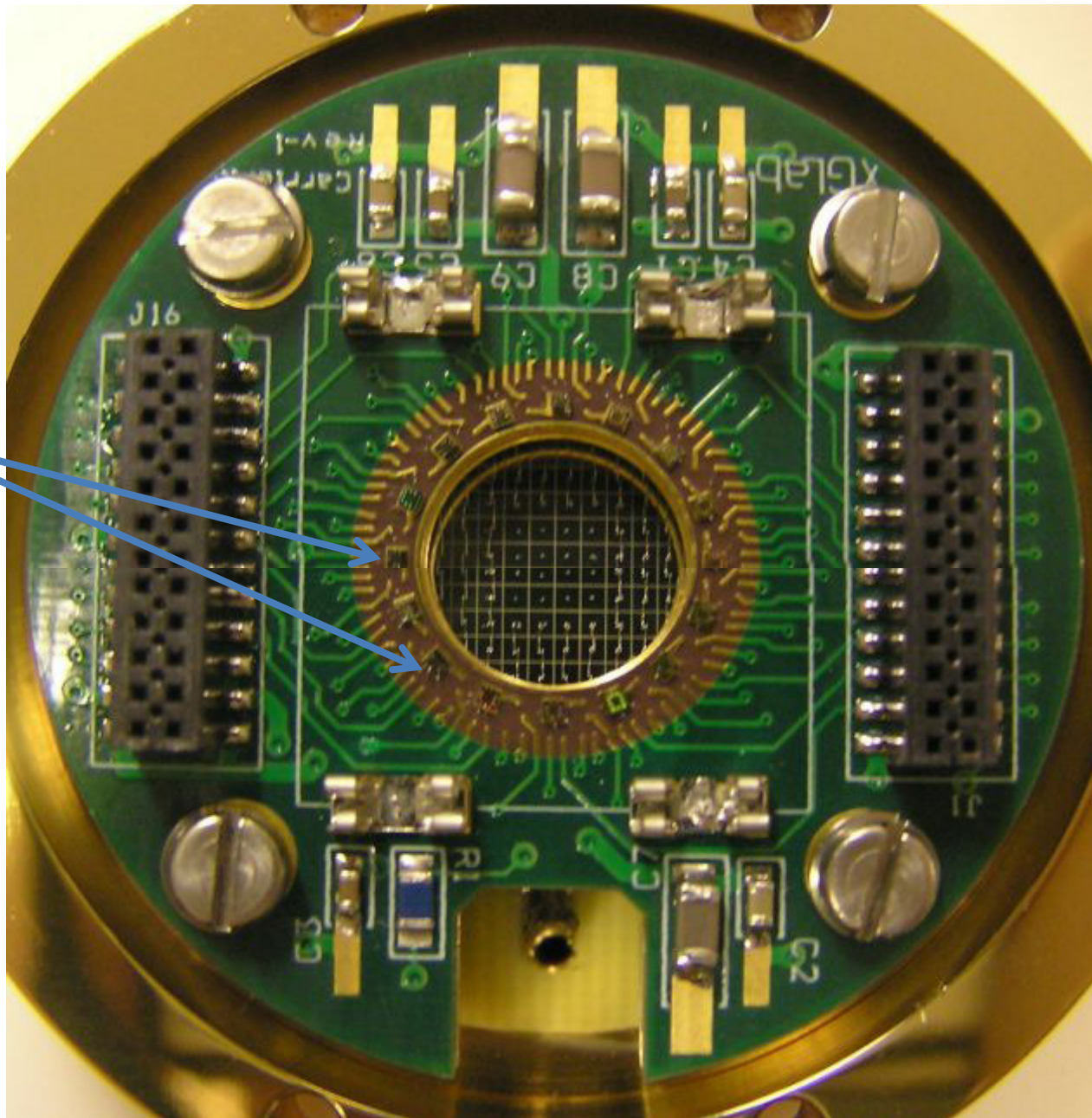
HPGe36 Xsp2 data (Xsp3 MatLab): MCA Pixel 28 with/out Xtalk Mo (17.49keV) OCR~450kcps

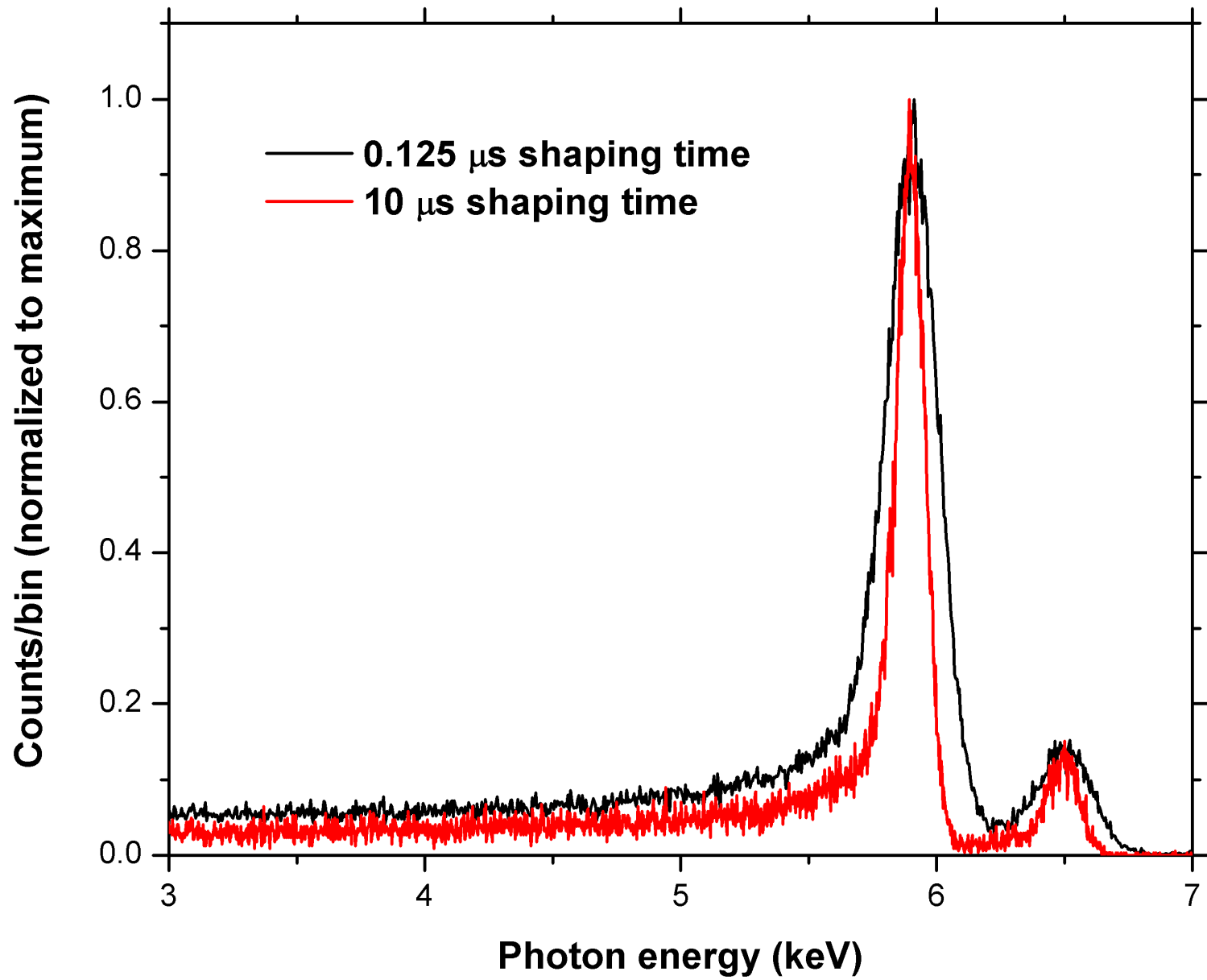


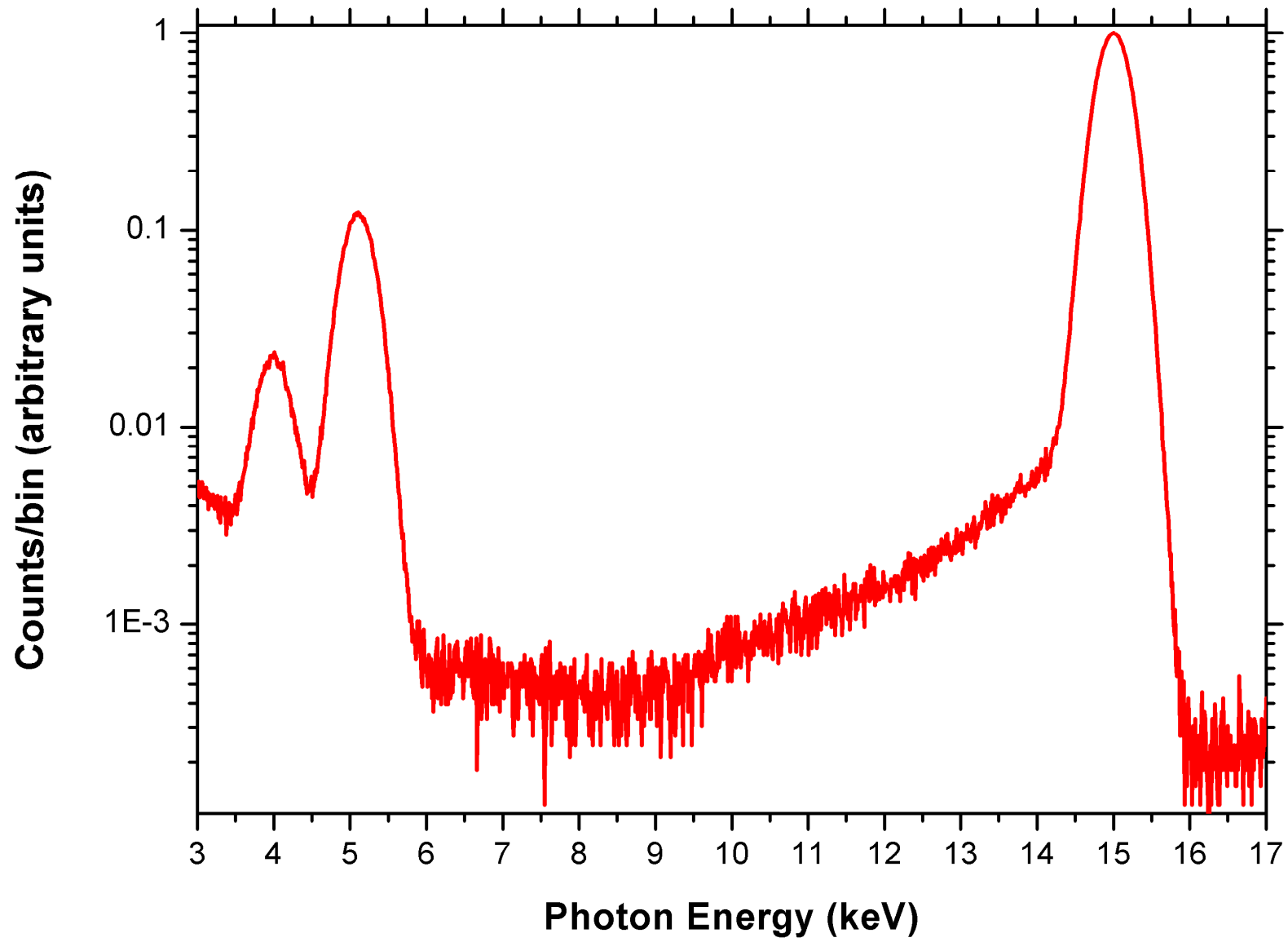
Mo fluorescence (K α @ 17.49keV)

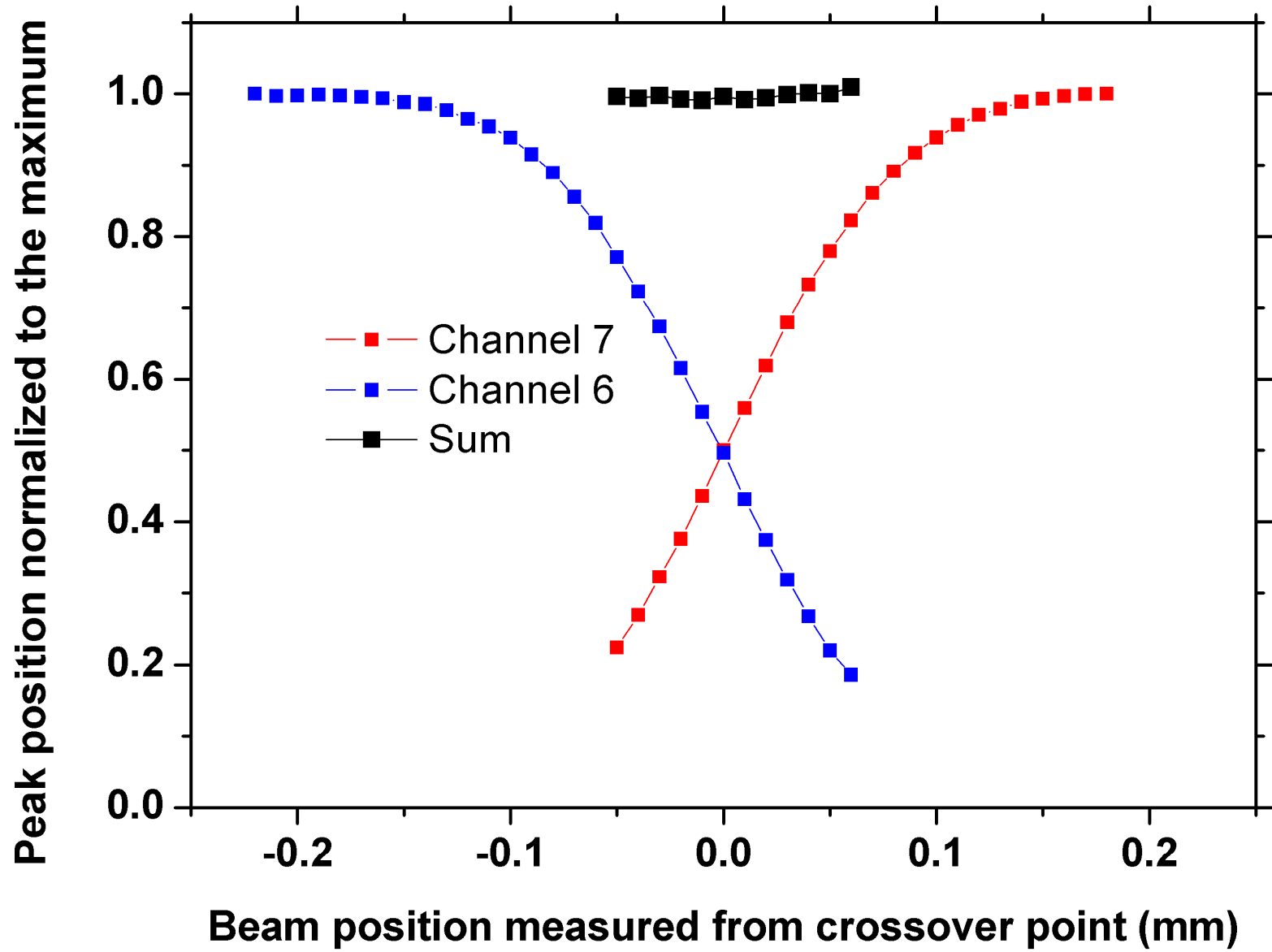


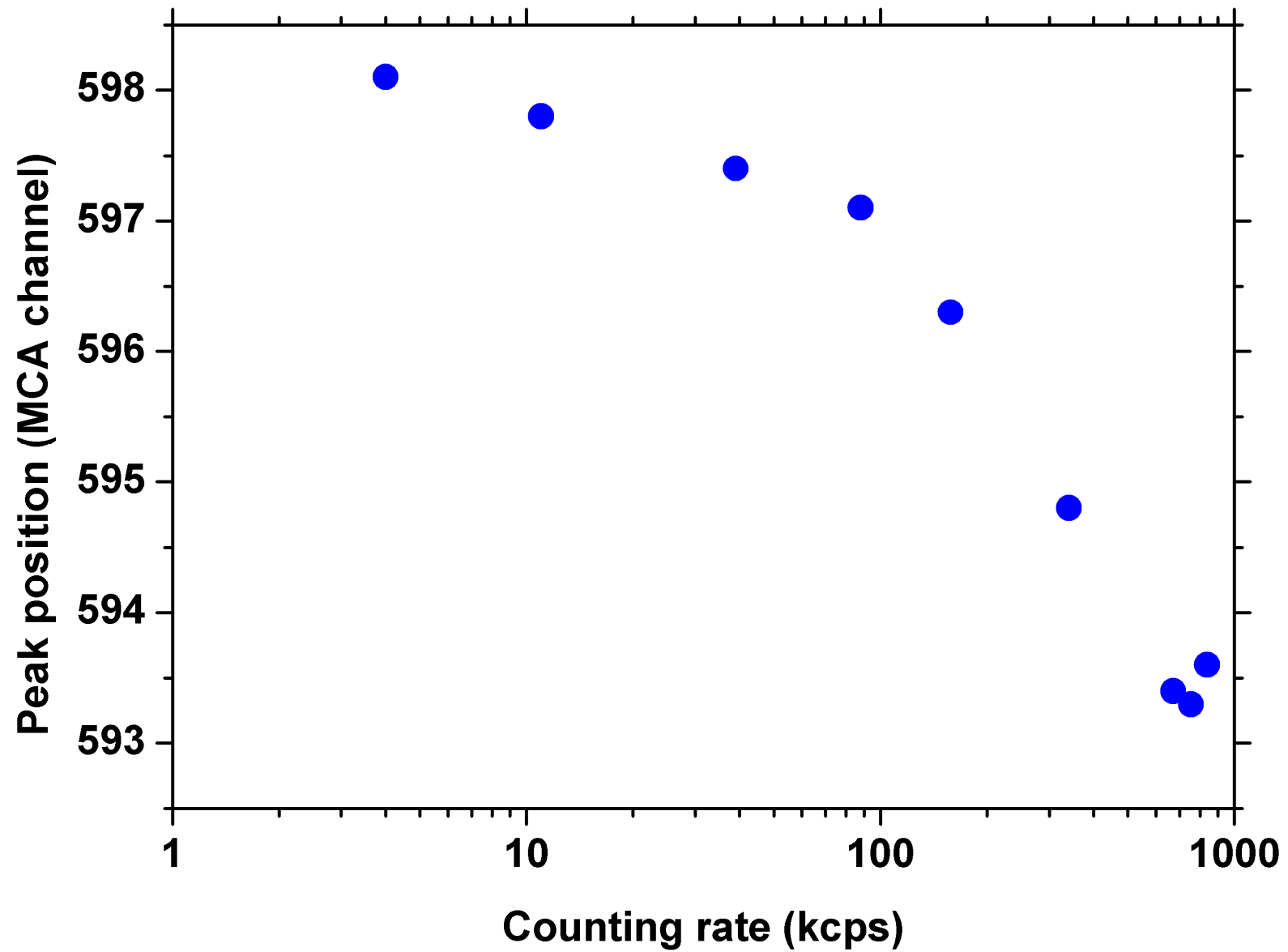
Preamps











- **New pulse processor**
 - Cross talk correction
 - Coincidence detection
- **Detector head miniaturization**