

Calibration of the OSU setup (LJU diary 6)

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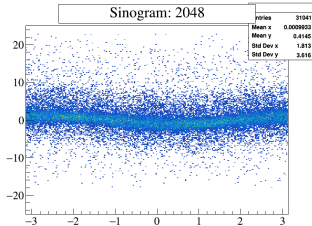
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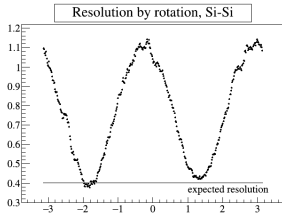
Resolution evaluation



- Procedure based on sinogram
- Draw a narrow (13 bin) profile in tangential (Y) direction
- Fit a Gaussian and extract mean and width of the hit distribution in the profile
- Compare to expected resolution based on LOR uncertainty perpendicular to LOR.



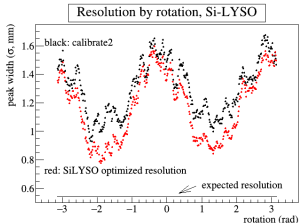
Resolution evaluation: Si-Si



- Resolution shows expected oscillations for sources aligned perpendicularly to or along the observation line. Observation line is the one connecting the detectors.
- For sources along the line, the resolution matches expectations.
- Note: si-si resolution was subject to minimization in calibration procedure.



Resolution evaluation: Si-LYSO



- The same for Si-LYSO
- Expected resolution is not reached. Black dots according to optimum given by calibrate2. Large discrepancy motivated search for si position not determined from si-si but from si-lyso run. New optimum found at (-117.105, -9.01536) instead of (-130.897, -8.60652), shown with red markers.
- Note - for expected resolution perfect crystal identification assumed, an assumption broken by severe signal sharing due to poor LYSO module properties.
- Optimum misidentification points to poor setup modelling.



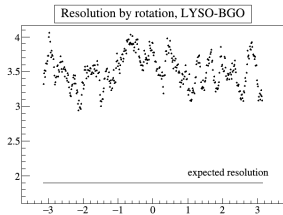
Resolution evaluation: Si-BGO



- The same for Si-BGO
- Expected resolution is not reached.
- Might be caused by poor detector position modelling.



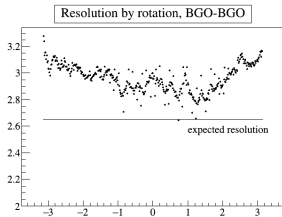
Resolution evaluation: LYSO-BGO



- The same for LYSO-BGO
- Expected resolution is not reached. In this discrepancy is even more jarring.



Resolution evaluation: BGO-BGO



- The same for BGO-BGO
- Pretty good match.

