

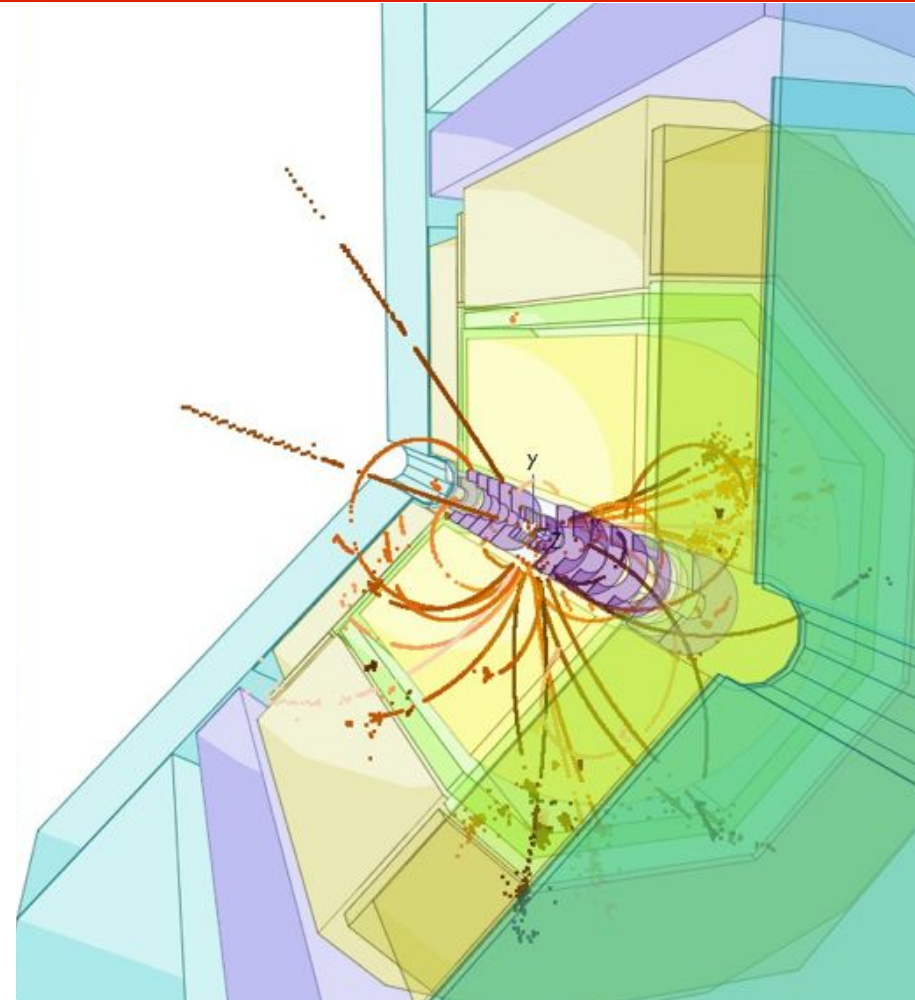
# Glasgow update

LCUK Silicon meeting  
3 Sept 2015

Aidan Robson

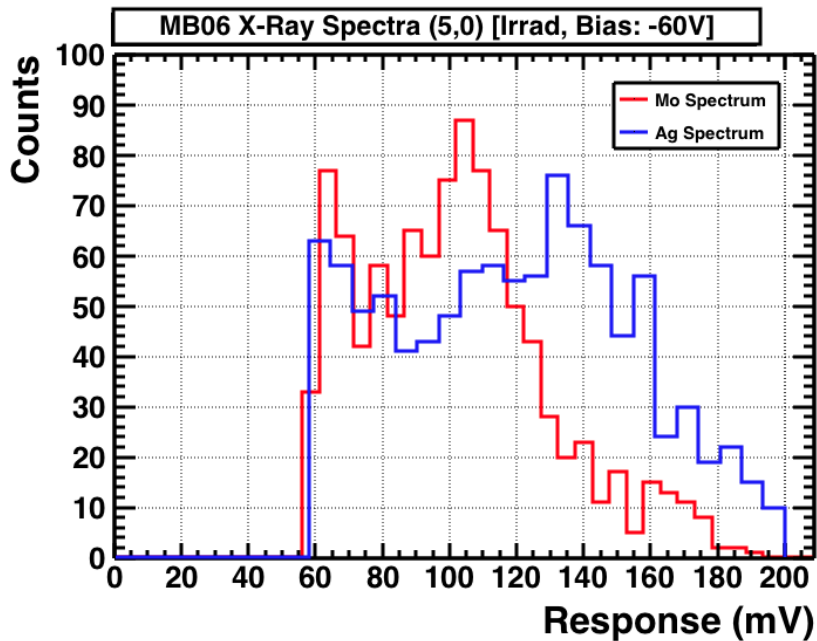


University  
of Glasgow | Experimental  
Particle Physics

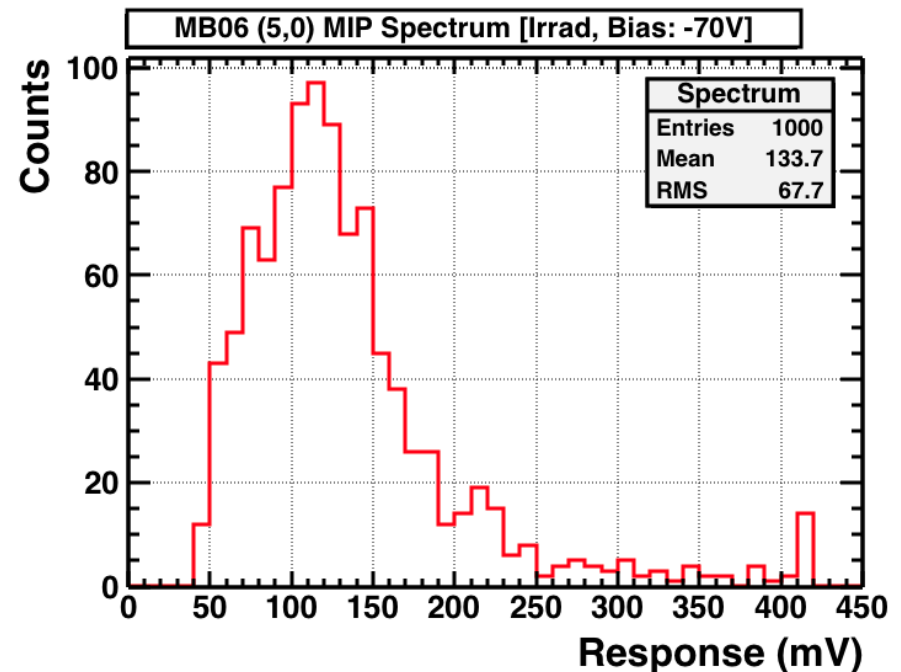


- ◆ HVStripV1 post-irradiation characterisation
- ◆ CCPD LF-A characterisation
- ◆ Tracking software
- ◆ Tracker layout

Ivan Peric HV-CMOS MB06 test chip, 40x400 $\mu$ m pixels  
 previously showed first Diamond testbeam + MIP results  
 now irradiated 27MeV protons to 1.23x10<sup>15</sup> neq/cm<sup>2</sup> (Birmingham)  
 first pre-annealing results:



X-ray spectra, 17.5 and 22keV

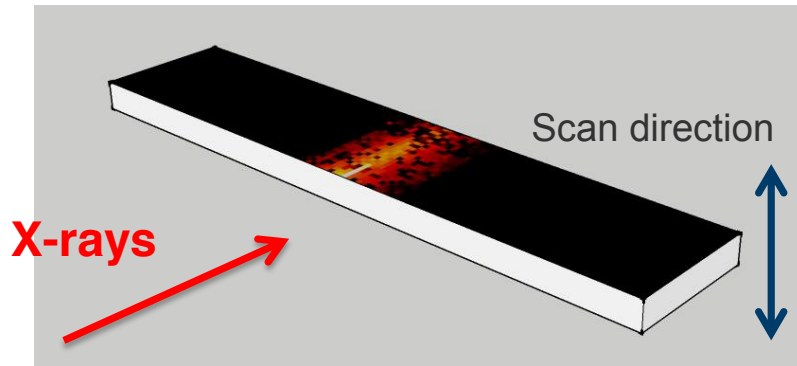


Sr-90 MIP response

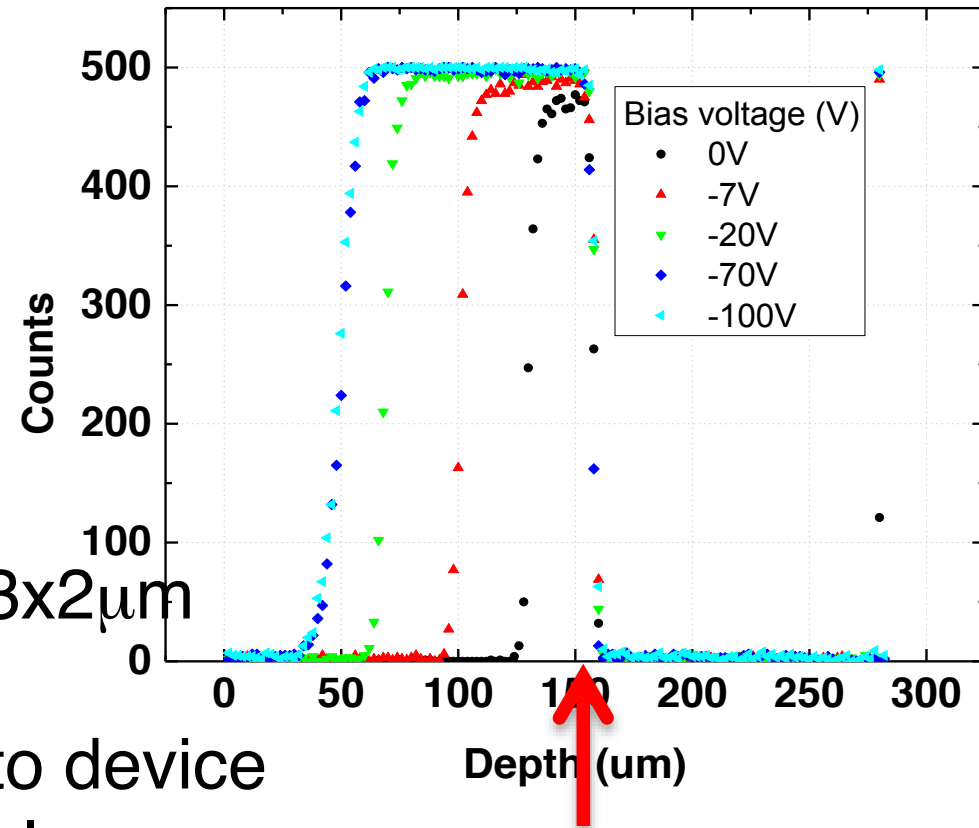
gain halved, noise up (not terrible!)

annealing done yesterday, also TCAD models being developed

## Depth scan



Dima Maneuski



July 2015 Diamond 15keV beam  $3 \times 2 \mu\text{m}$

LF-A has  $33 \times 125 \mu\text{m}$  pixels

Scanned beam normal & parallel to device

-> understand charge collection volume

Simulation starting

(both Geant & electrical properties)

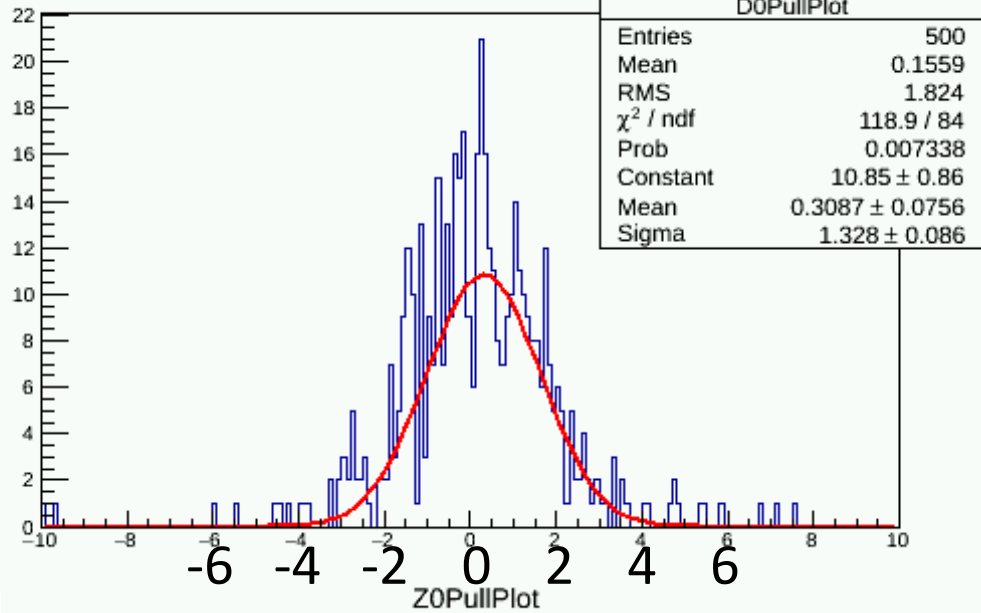
Best guess top edge of sensor starts here. Plus 10-15um dead volume(?)



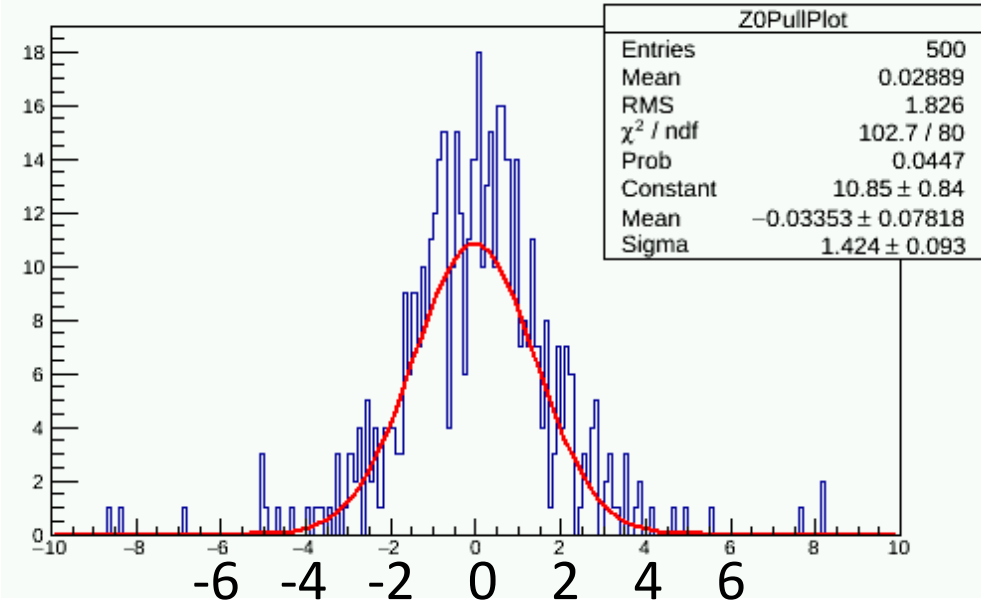
CERN LCD group /Glasgow submitted joint Diamond application for similar measurements on CCPDv3 with CLICpix chip (25x25 $\mu$ m pixels)

Comments all positive but unfortunately no beamtime this time -> will try to pursue (resubmit or piggyback)

D0PullPlot



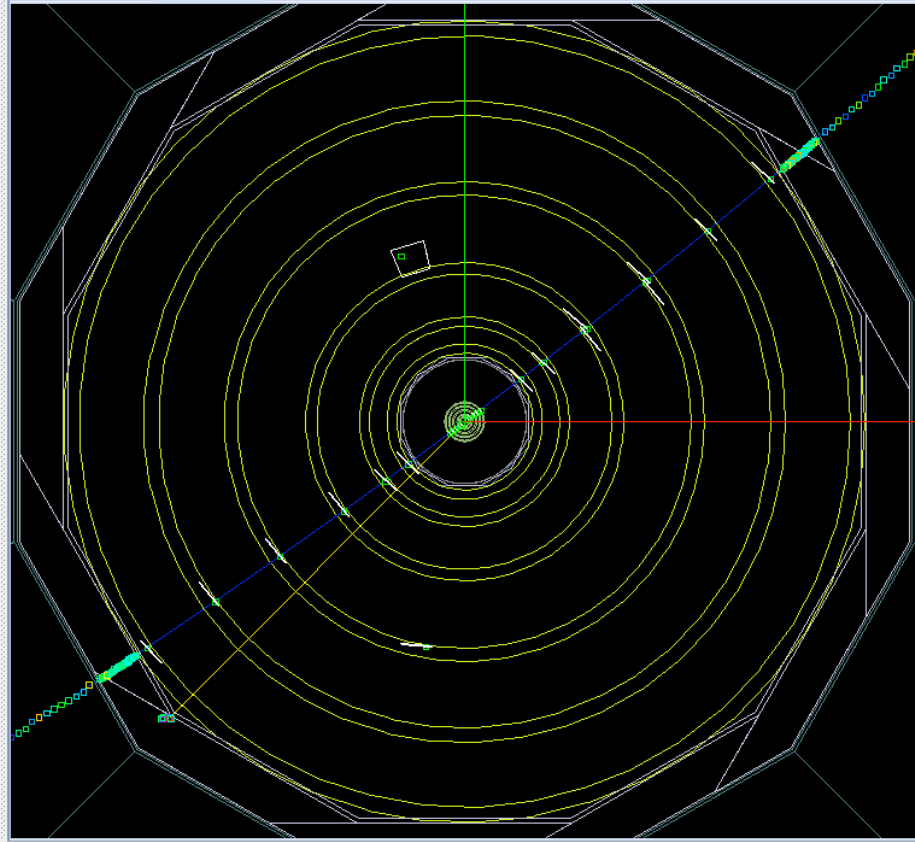
Z0PullPlot



Joined CLICdp tracking s/w effort with Daniel Hynds (CERN group / Glasgow HonRA)

ILD-style pattern rec + Kal filter ~working (Rosa Simoniello)

- ◆ try to understand **bad pulls**, turning off multiple scattering / changing material to air
- ◆ + develop tracking performance package
- Alternative pattern-rec under investigation by Daniel
- ◆ + understand **inefficiencies**
- ◆ **excellent Glasgow UG student starting**



modified

Have modified SiD tracker geometry and run reconstruction  
Forthcoming:

- ◆ put in realistic alternative model
- ◆ unite with tracking performance package
- ◆ 2nd excellent Glasgow UG student starting