Results on the diamond sensors from the testbeam

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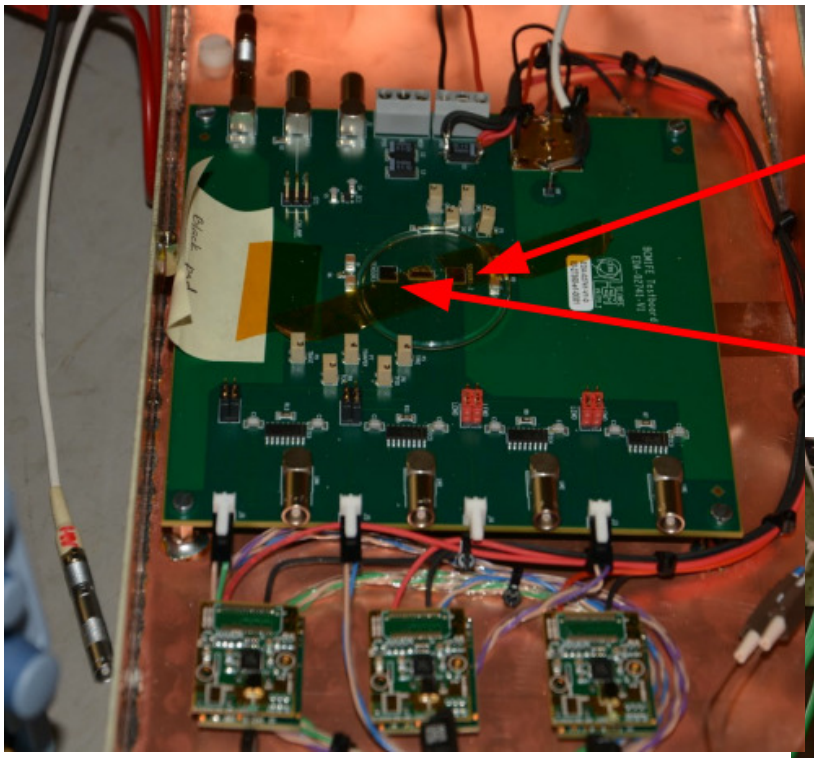
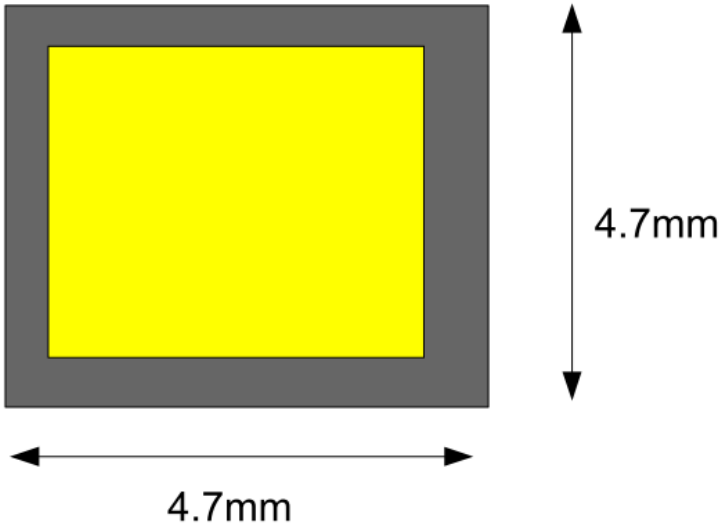
Testbeam setup

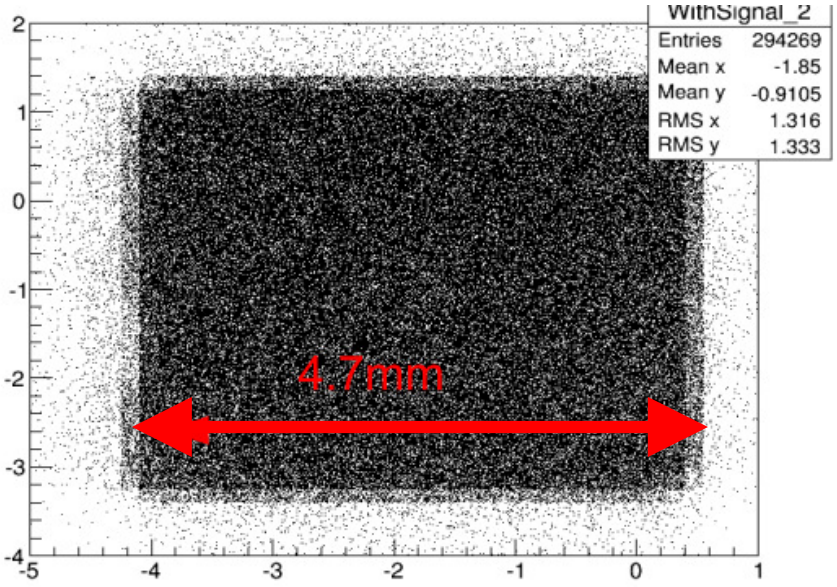


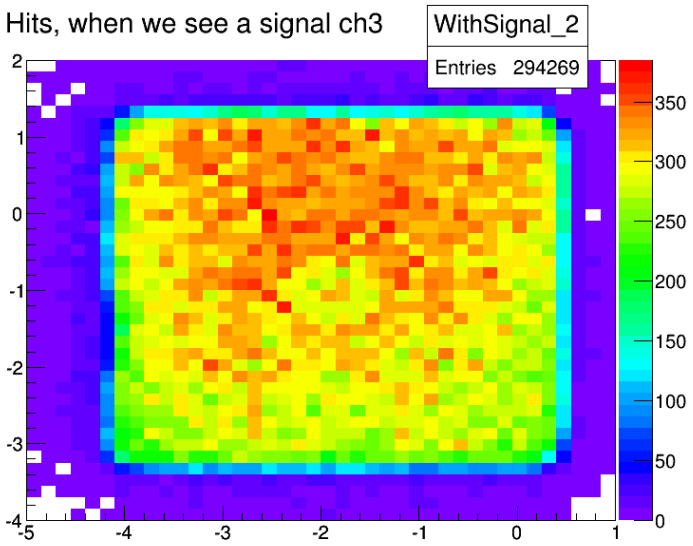
Diamond samples, single crystal
With 1 pad and 2 pad metallisation

5GeV electrons

One pad diamond



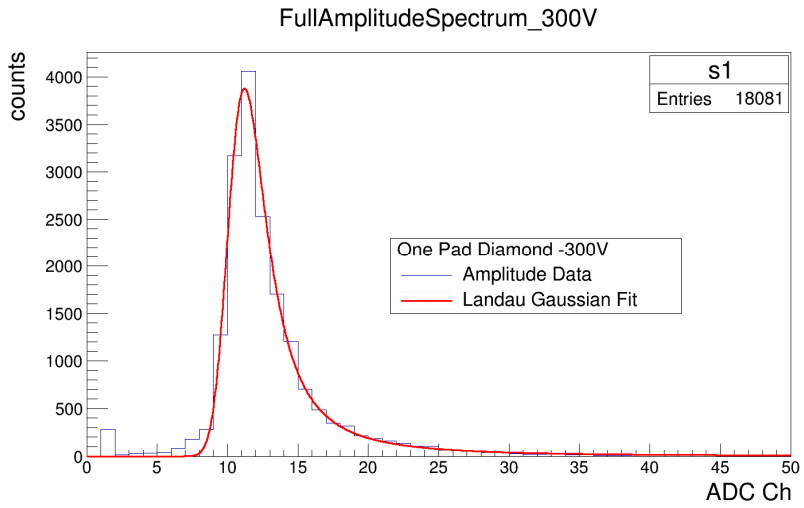


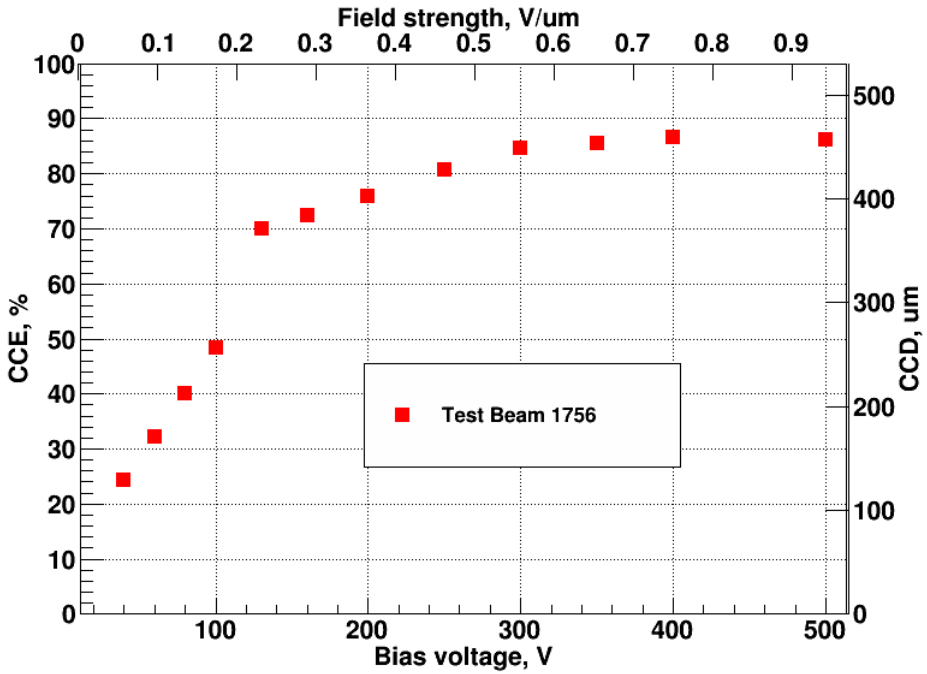


> 4 ADC channels selected

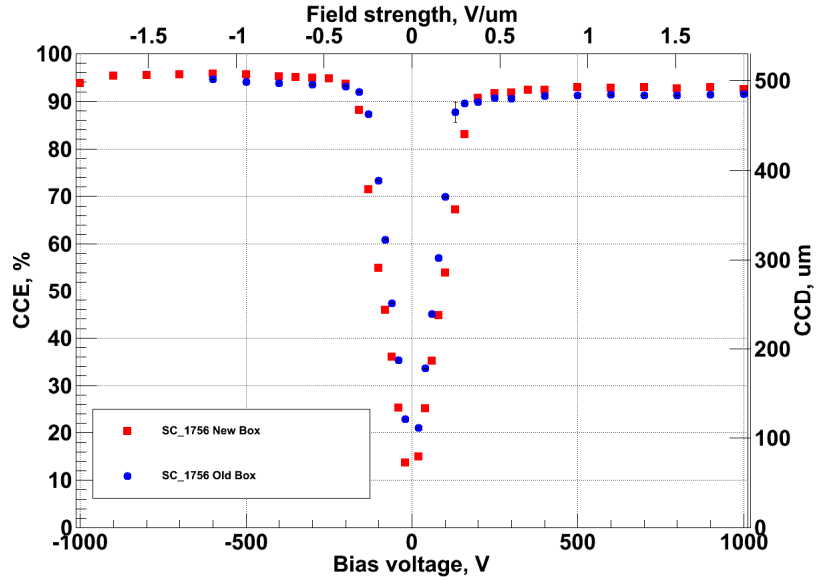
Peak ~ 11 ch

One pad diamond



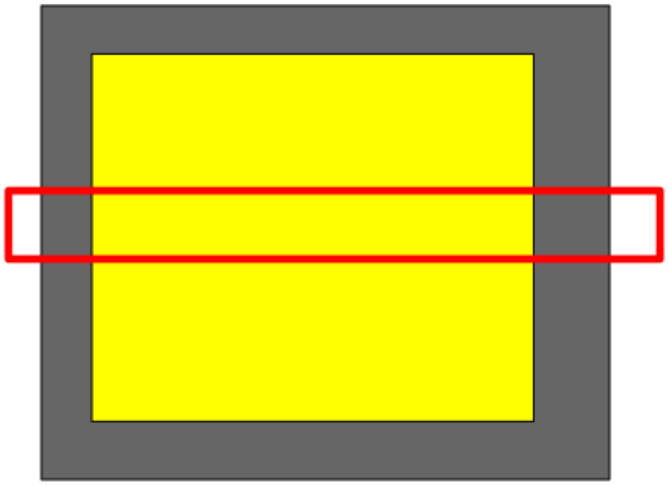


Kink = probably change of cable



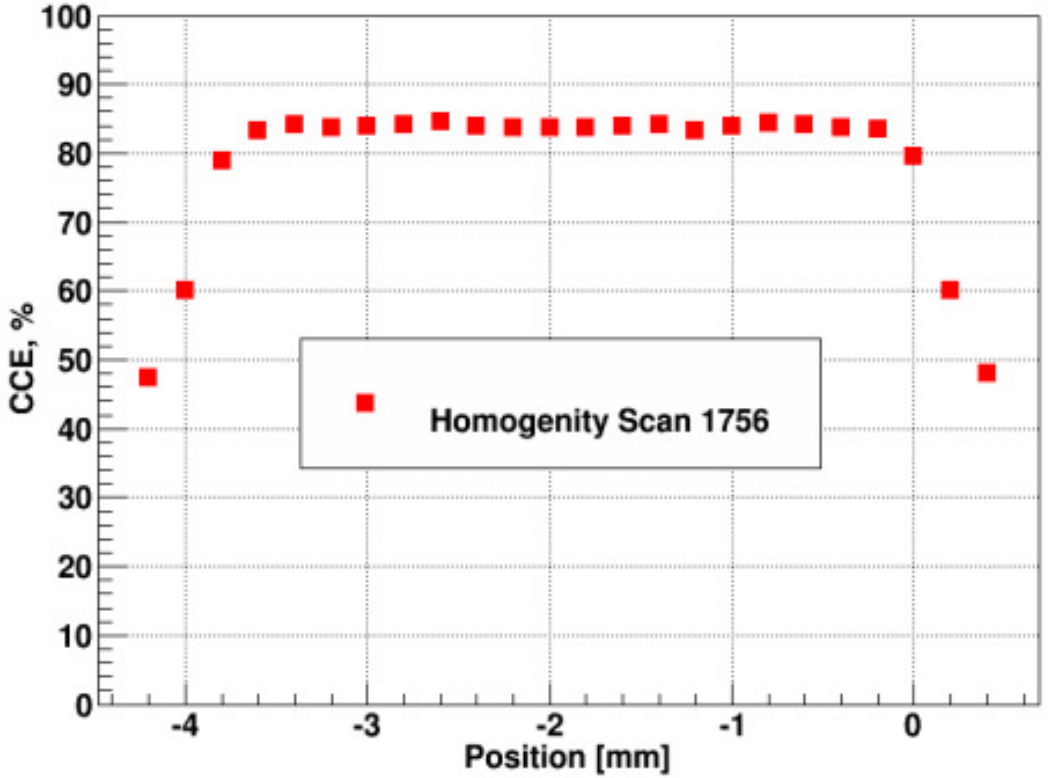
Diifference of ~ 10%

One pad diamond - homogenity

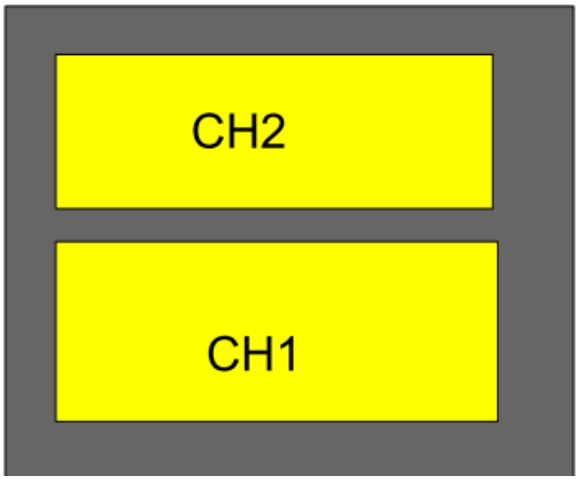


@ 500V

In a strip of 500um, 200 um bins
~ 2000 events per point

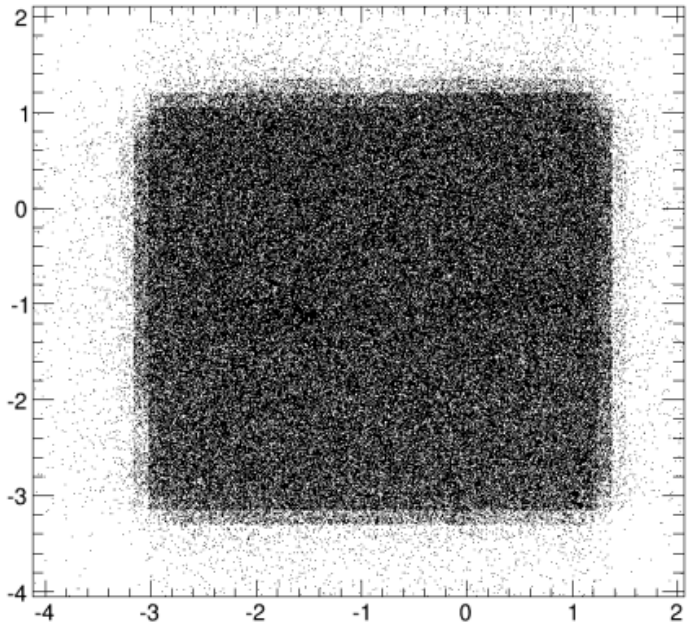


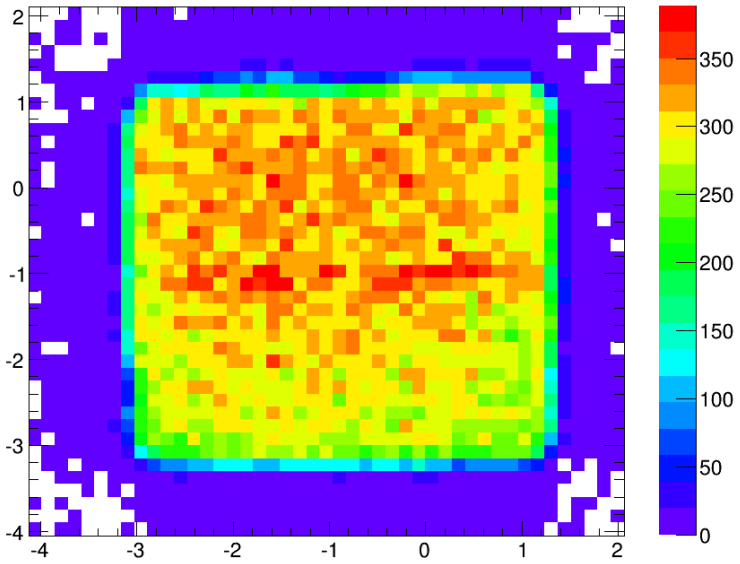
Two pad diamond



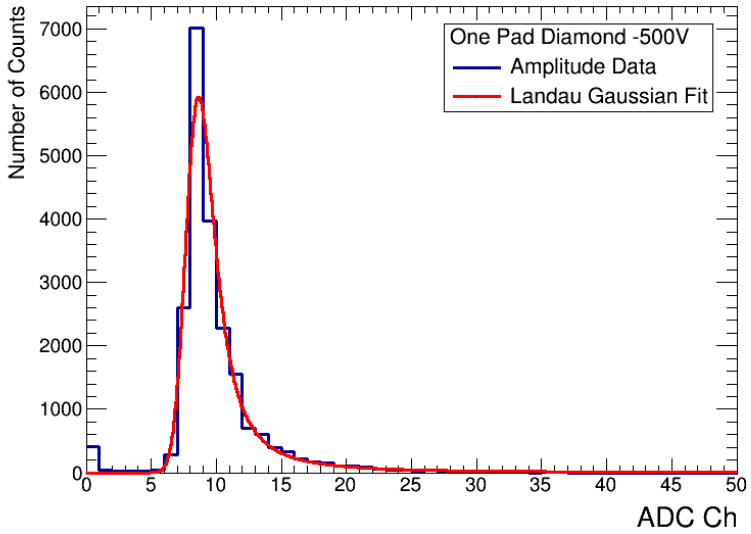
5 um distance between the pads

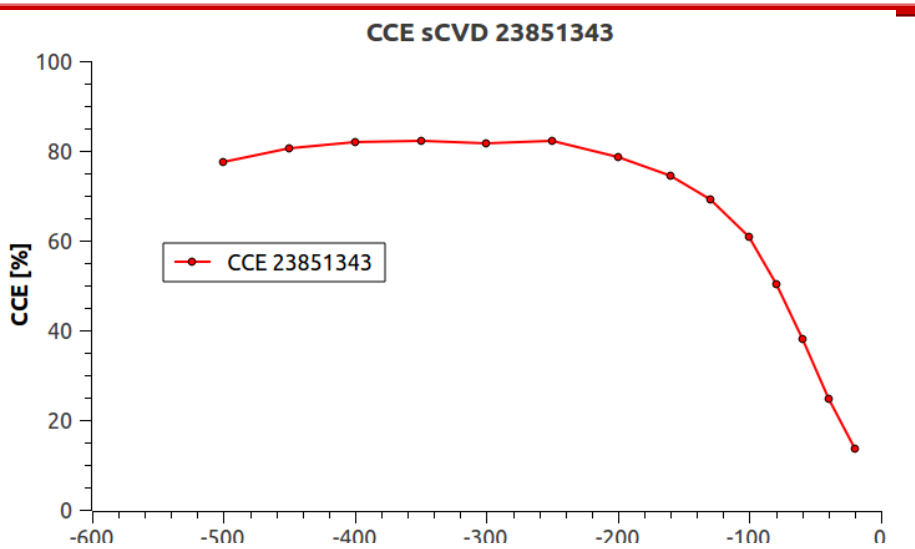
sc23851343

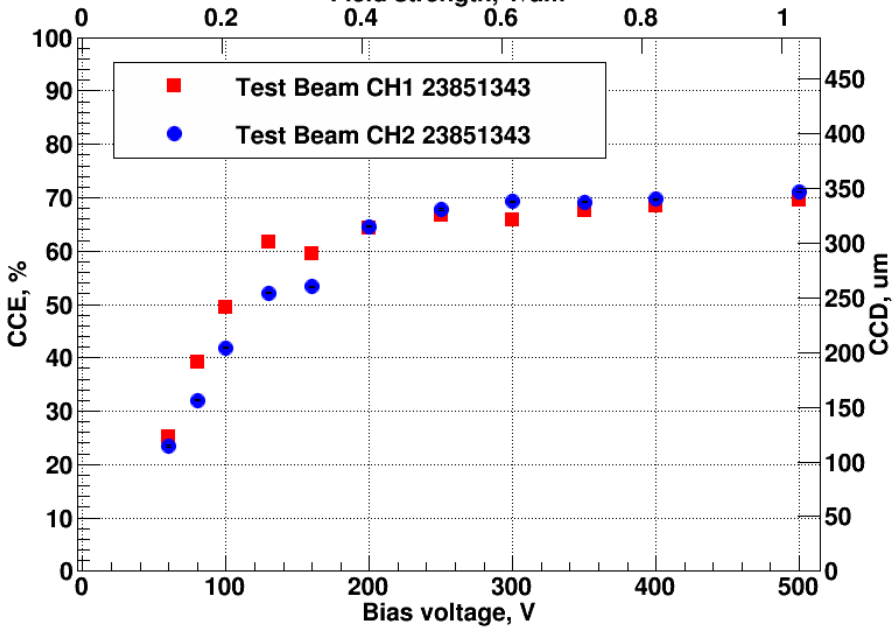




Two pad diamond

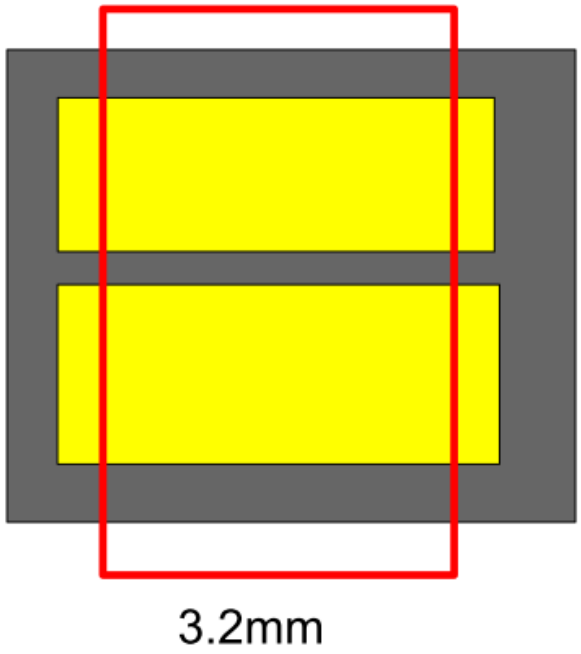


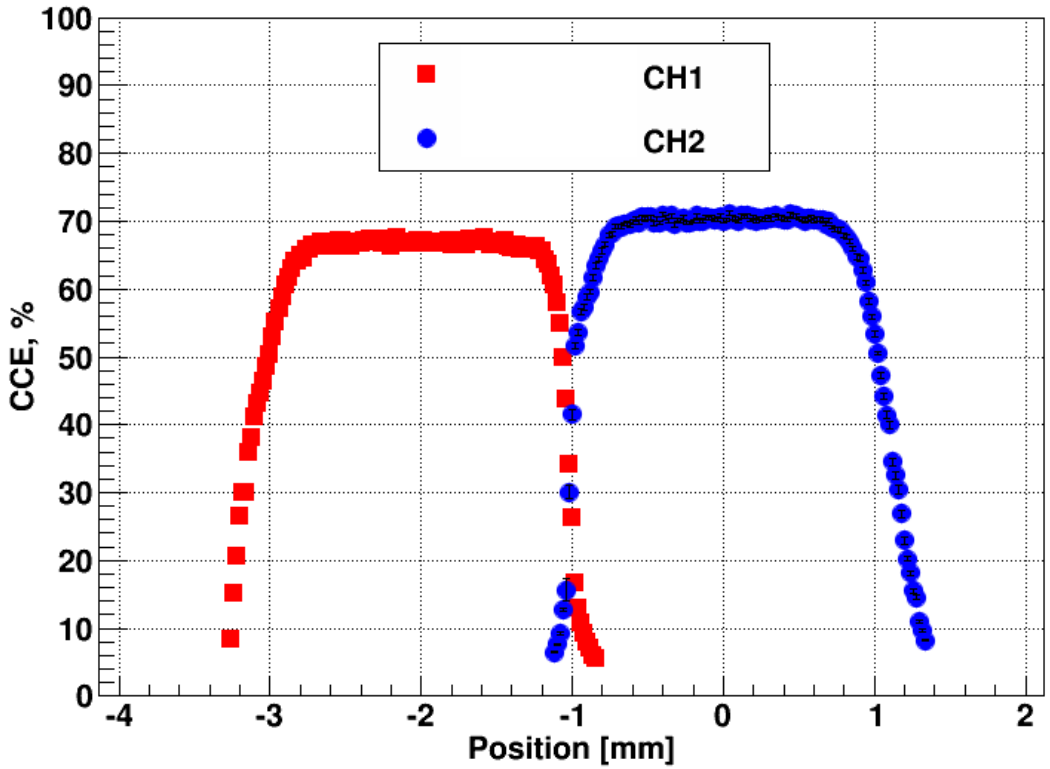




CCE measured at testbeam
is ~10% lower then at the lab
Possible explanation –
Calibration capacitor precision
Need to recalibrate with ext. cap

Two pad diamond - homogenity

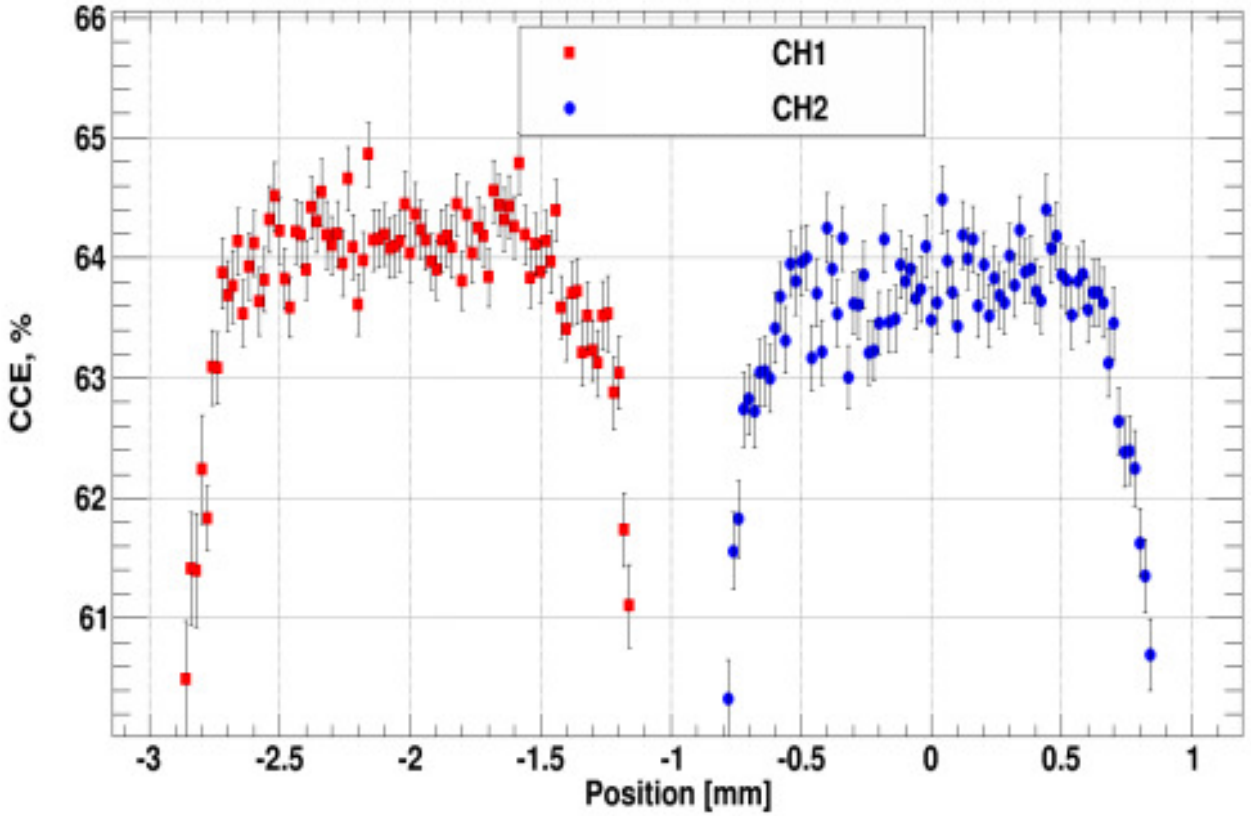




@350V

Precise measurement of detector and pads is required

Two pad diamond - homogenity



800 events per bin, 20 um per bin

Response homogeneous within 2%

Conclusion

Things to do

1. Calibration in the lab, correction coefficients, comparison.
2. An explanation is needed for the gap width

Possible explanation is weighting field shape and trapping