

# ECAL analysis (work in progress)

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2007 data, selection of runs

Event selection as used for 2006 data (from David Ward)

- Loose energy requirement
- Reject pre-showering events

Kill hits in lower slab for now  
(not fully instrumented during whole run)

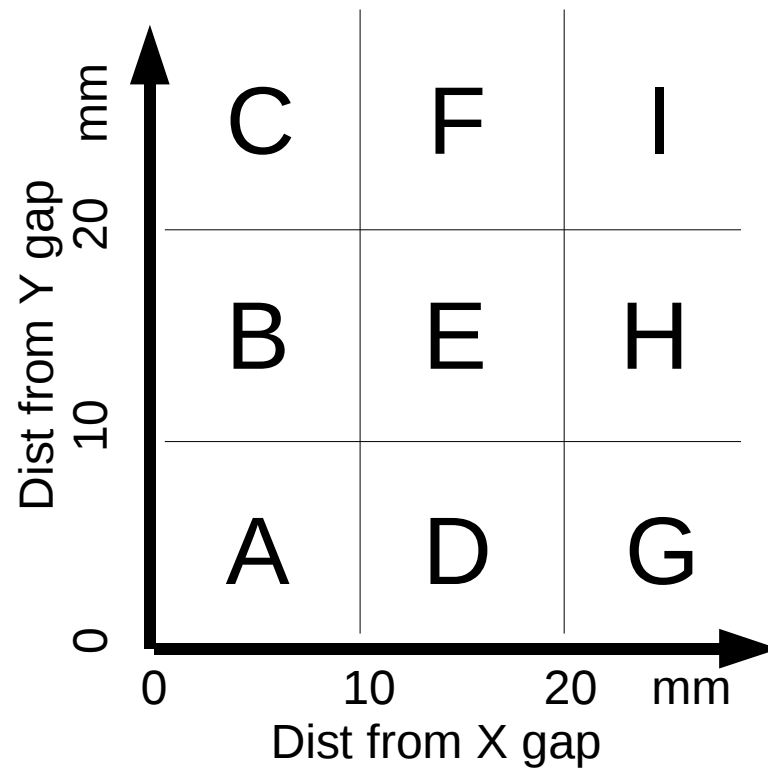
Plots of various possibly interesting variables

detector performance in various parts of detector

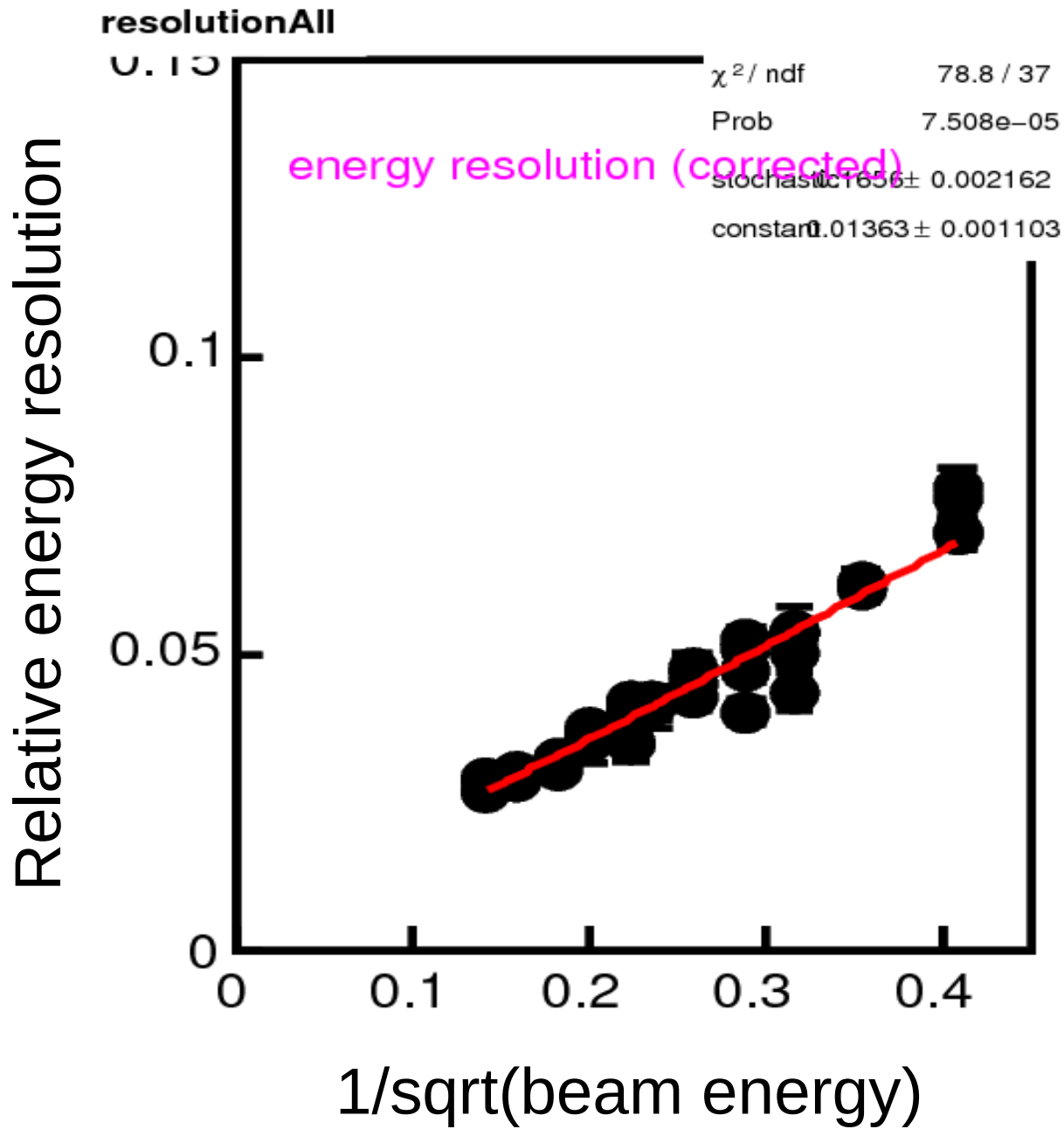
see effect of interwafer gaps

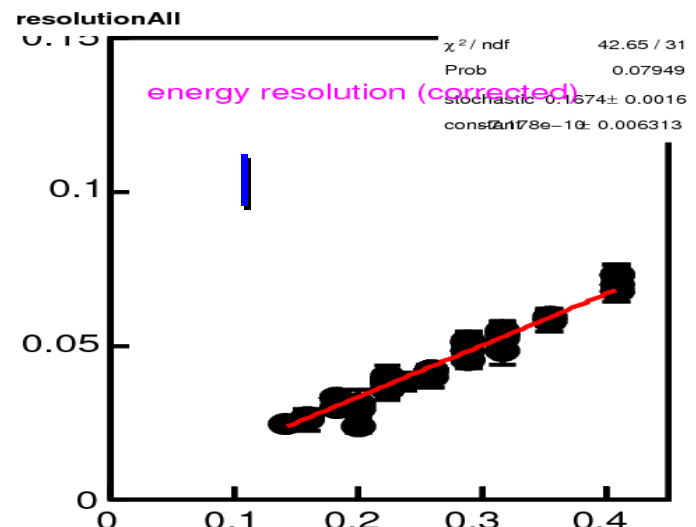
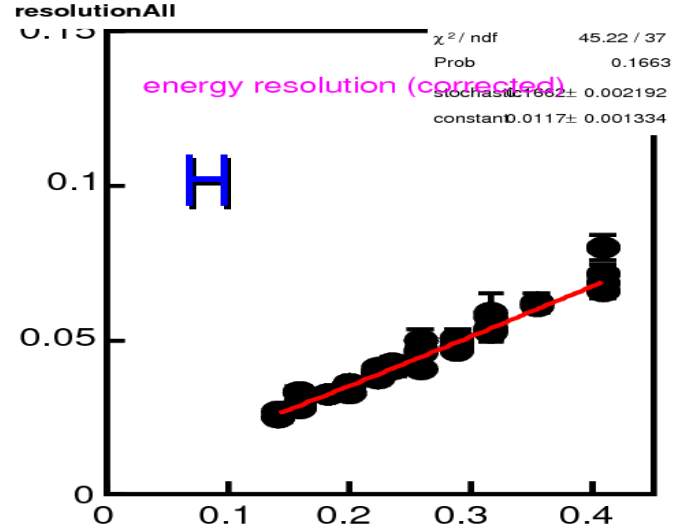
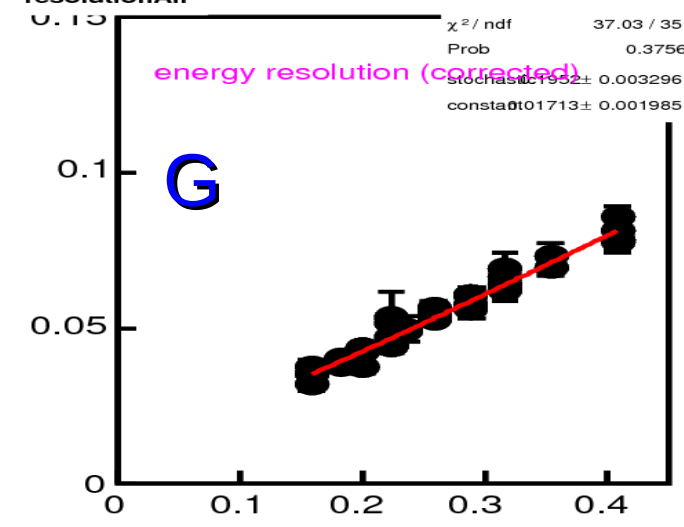
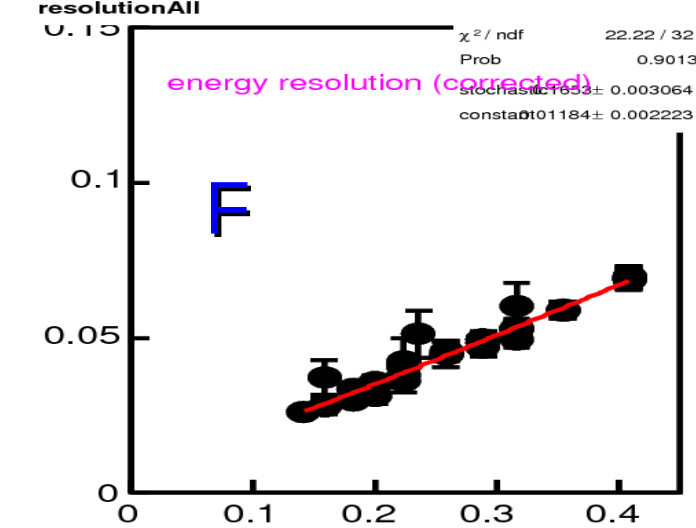
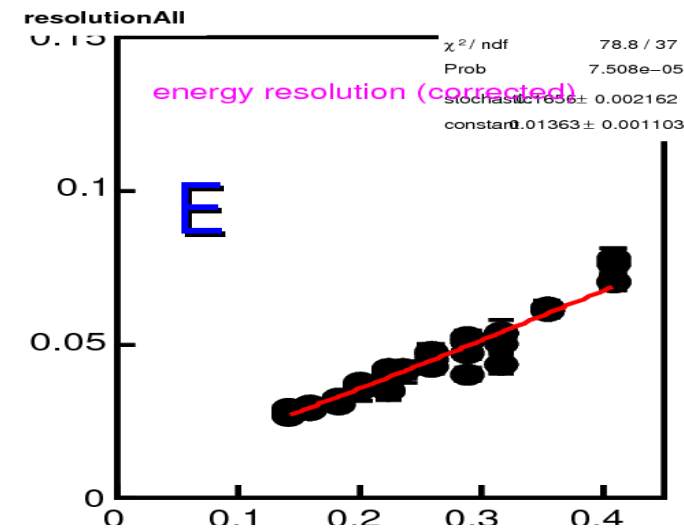
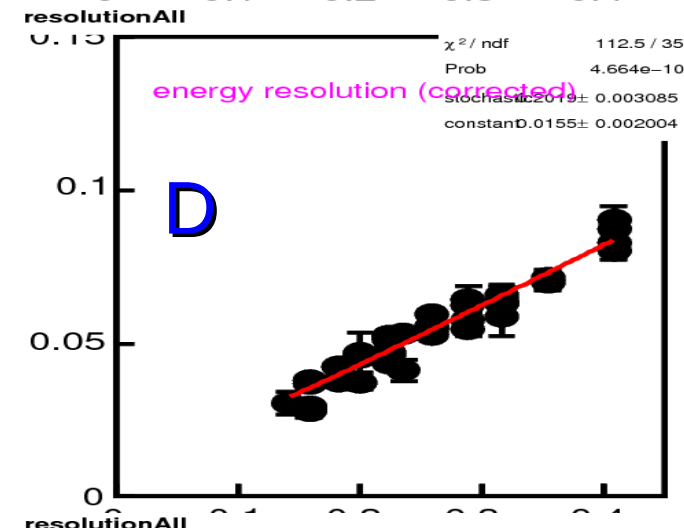
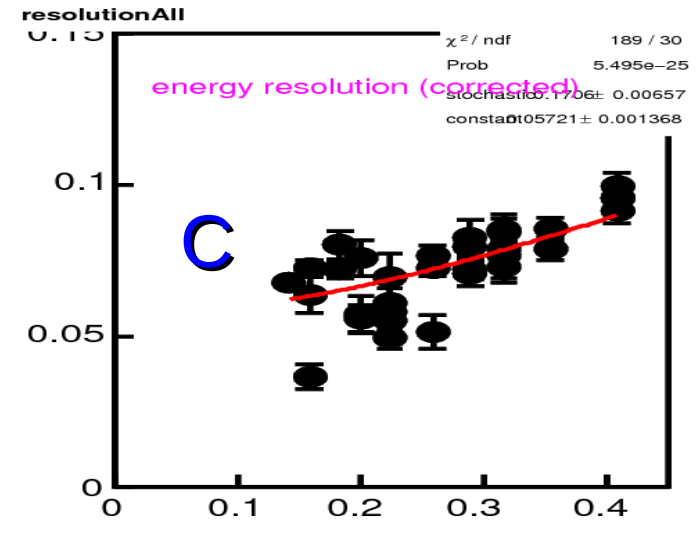
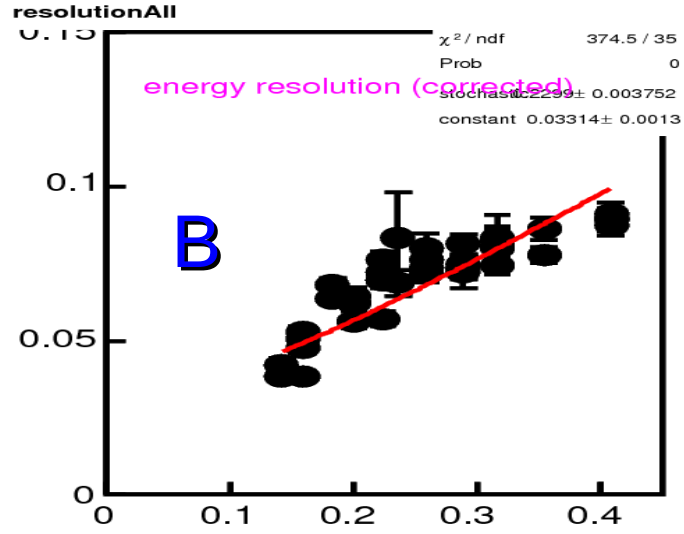
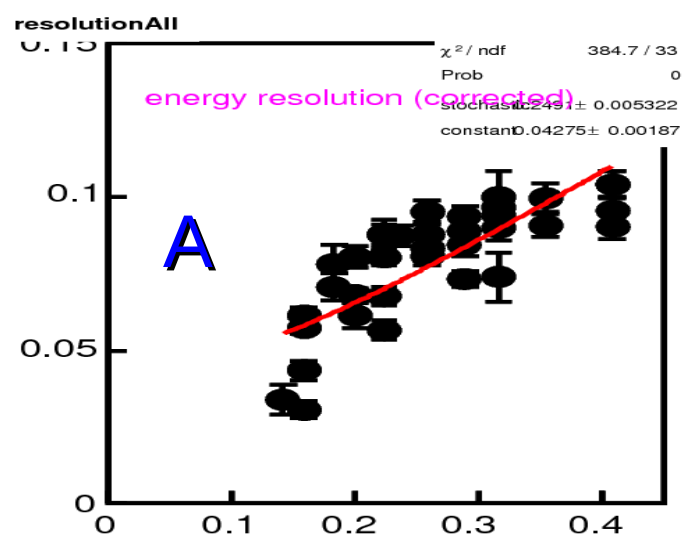
Reject events with centre-of-gravity < 33mm from detector edge  
(remove effect of lateral leakage)

classify events according to distance from  
shower centre-of-gravity to X and Y interwafer gaps

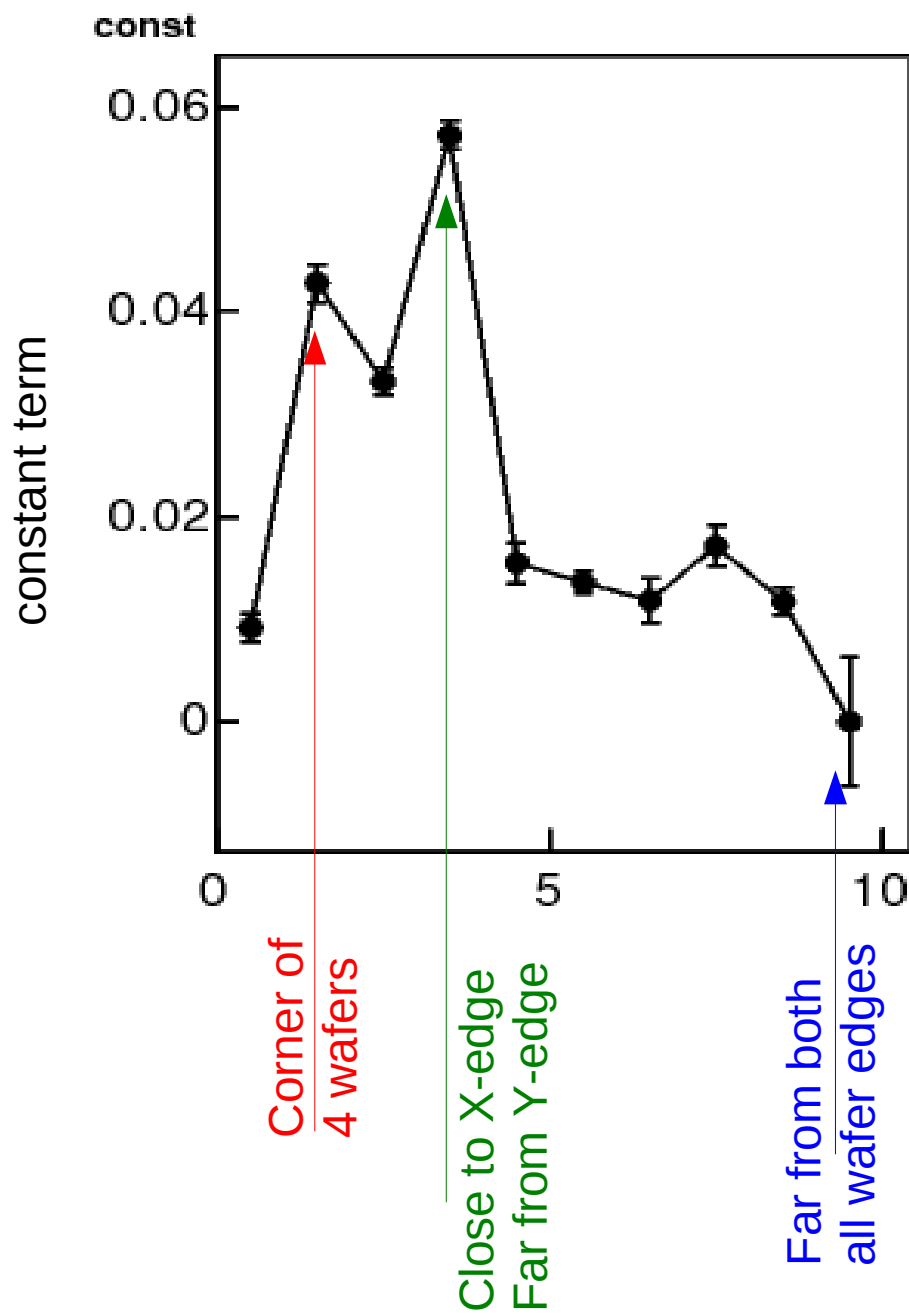
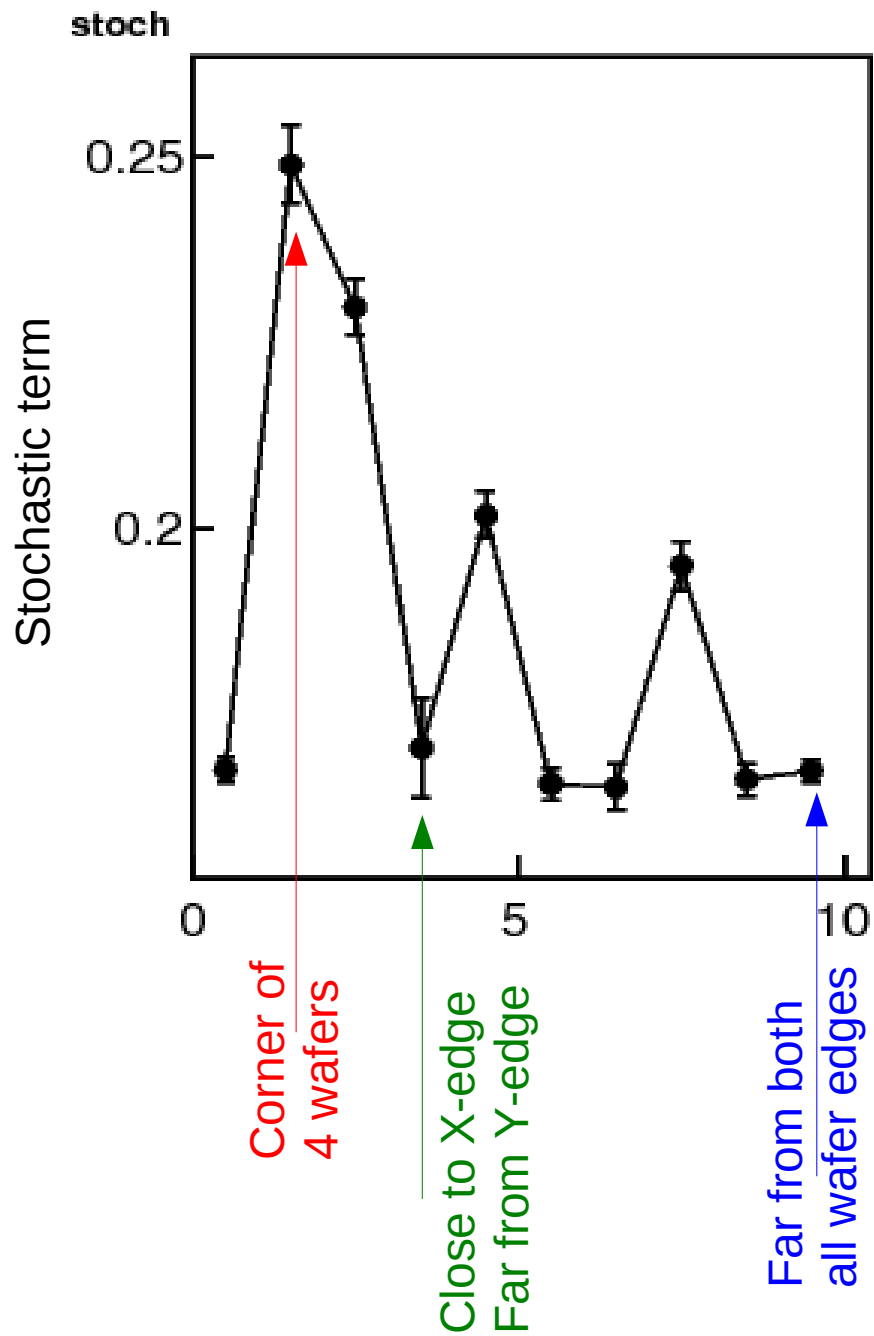


e.g. Region "E" : 10-20mm from both interwafer gaps





# Measured energy resolution in different detector regions

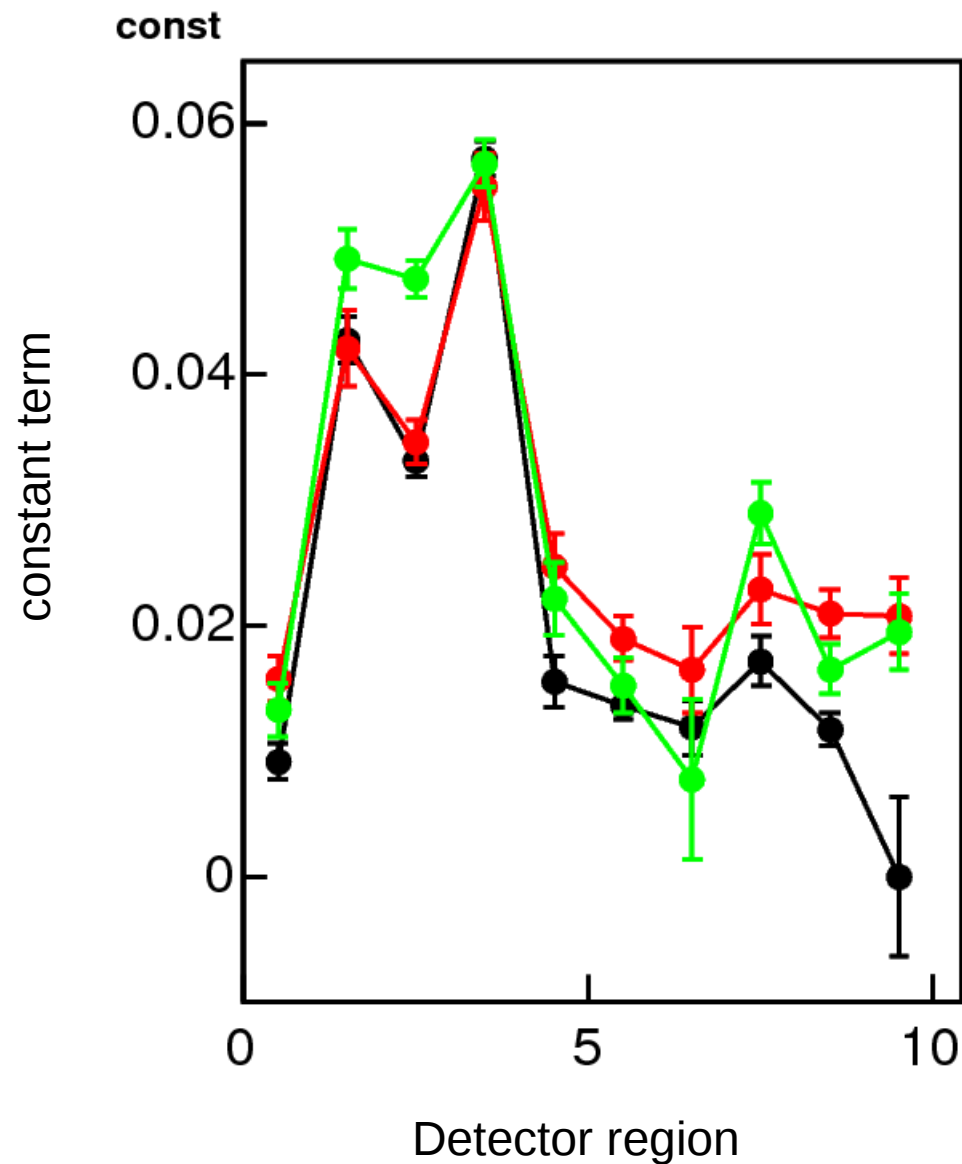
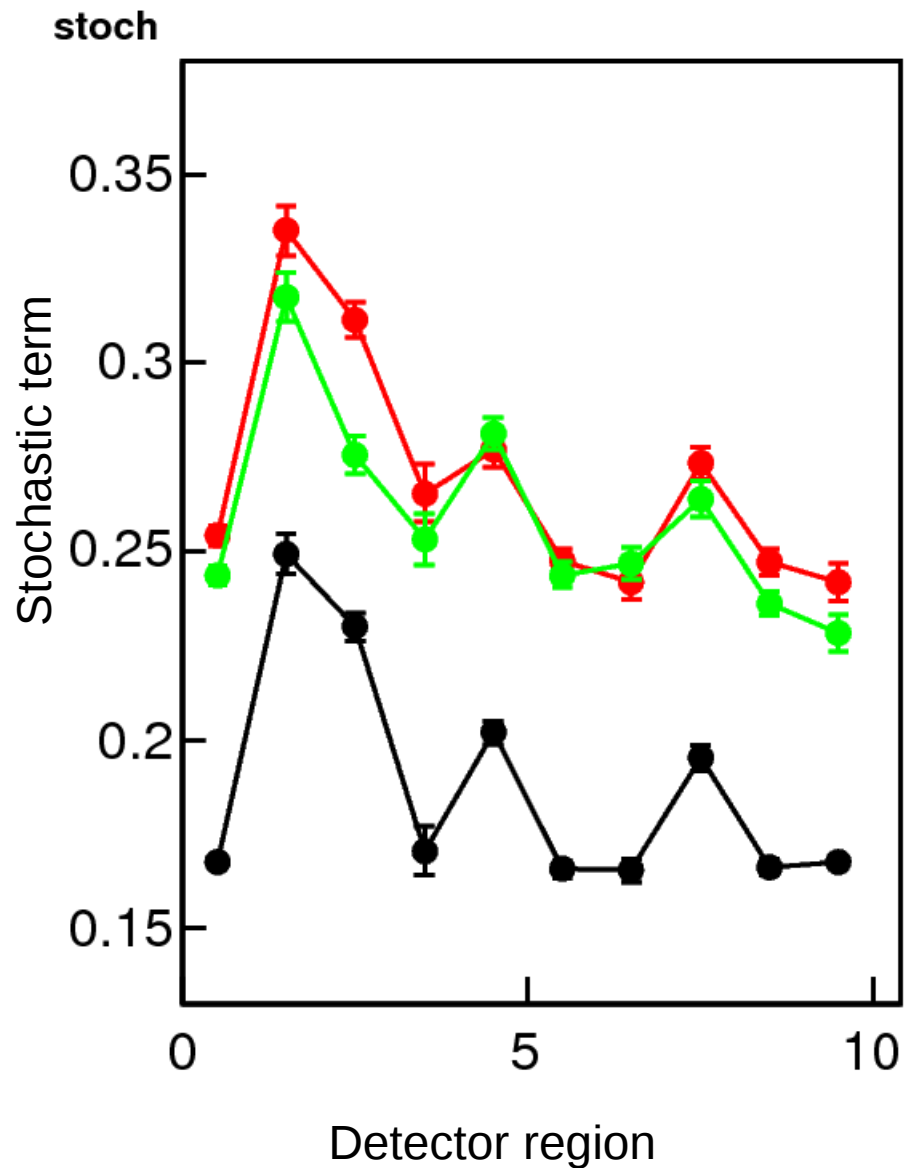


# Energy resolution if only subset of layers are used

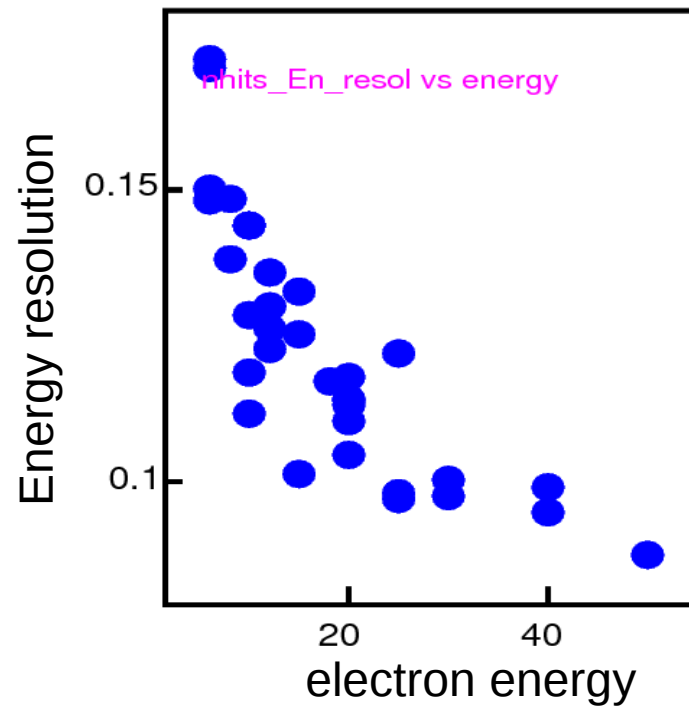
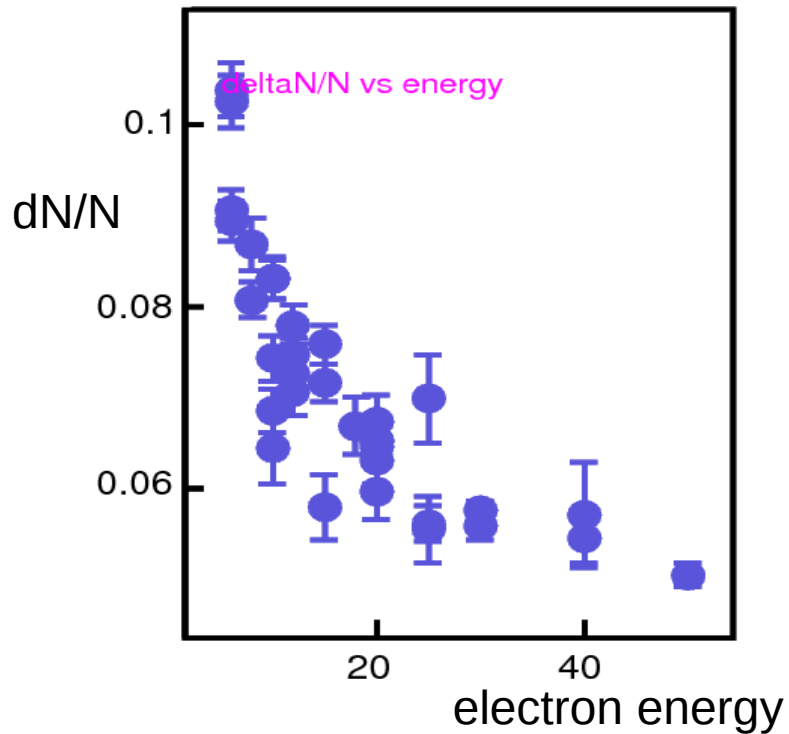
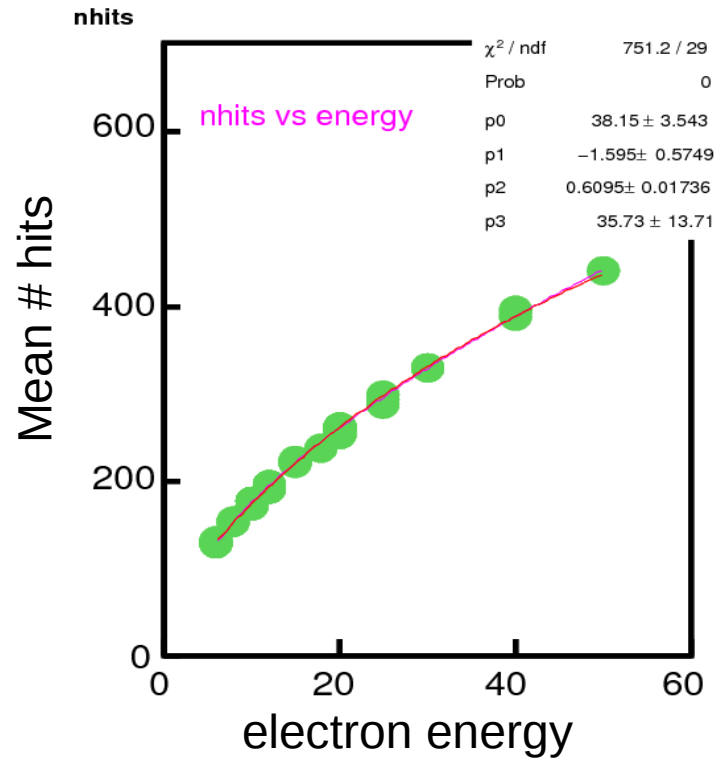
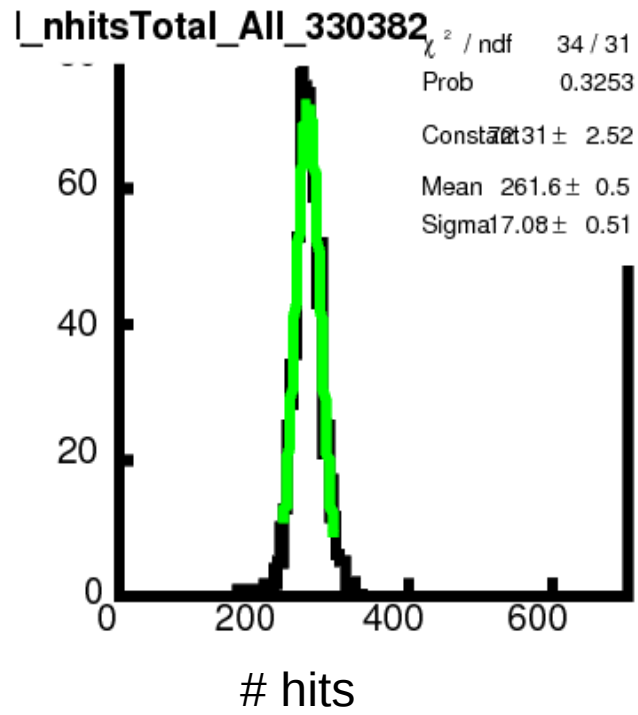
All layers

Odd layers

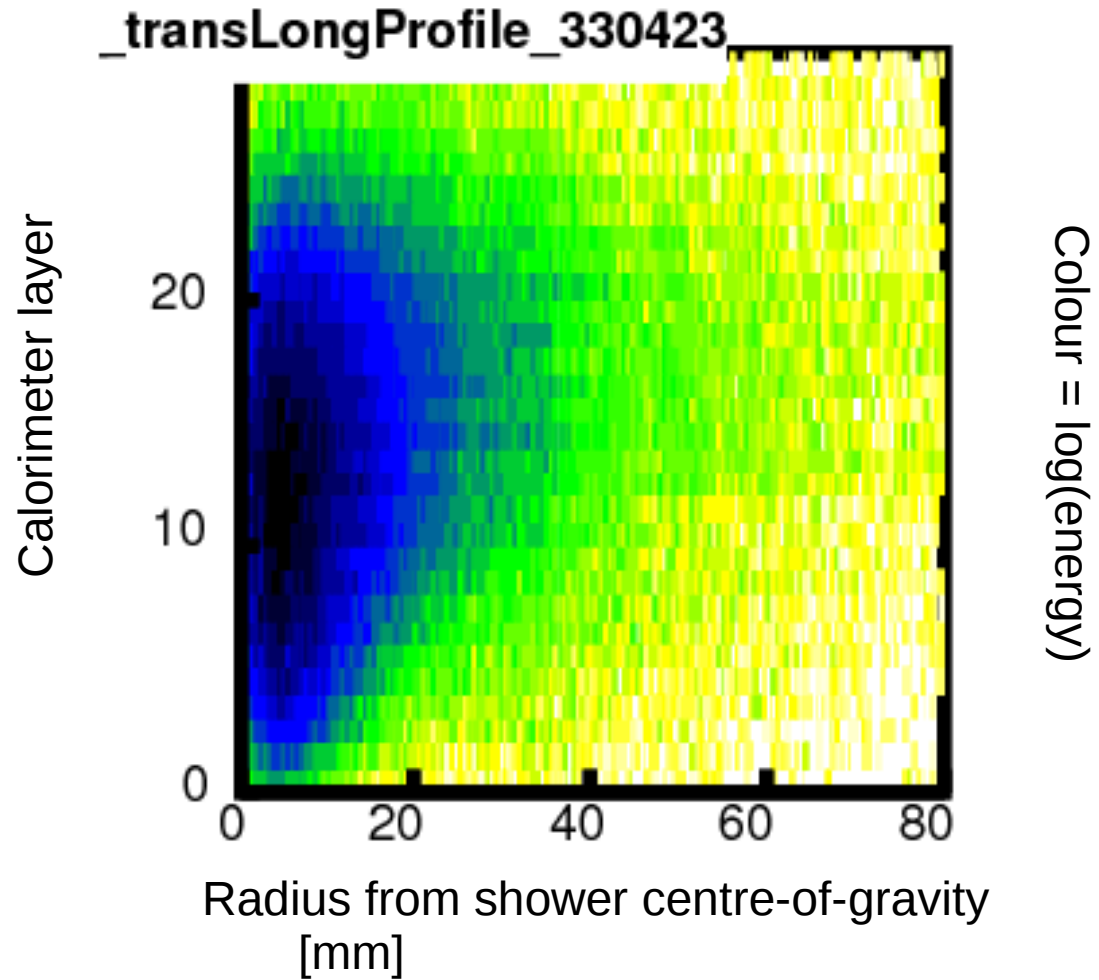
Even Layers



# Studies of # hits in detector



# Average shower shapes

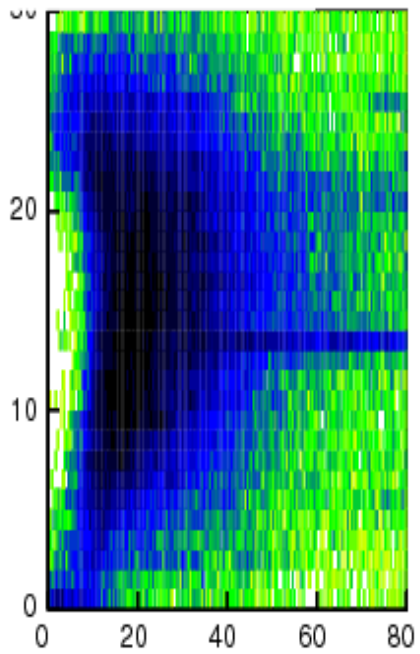




# Shower profiles considering only hits in certain energy ranges

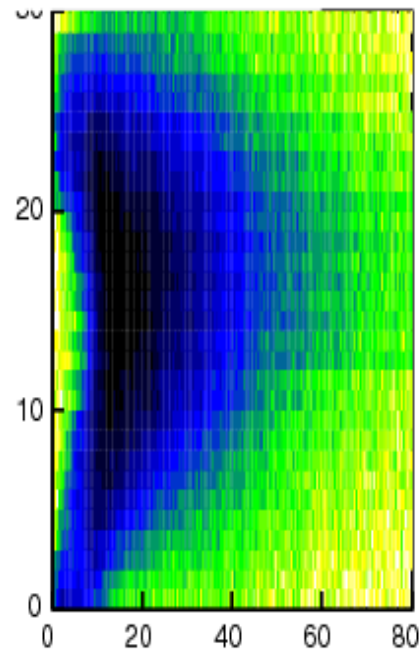
Colour = average energy (in log scale)

thresh50\_transLongProfile\_330423



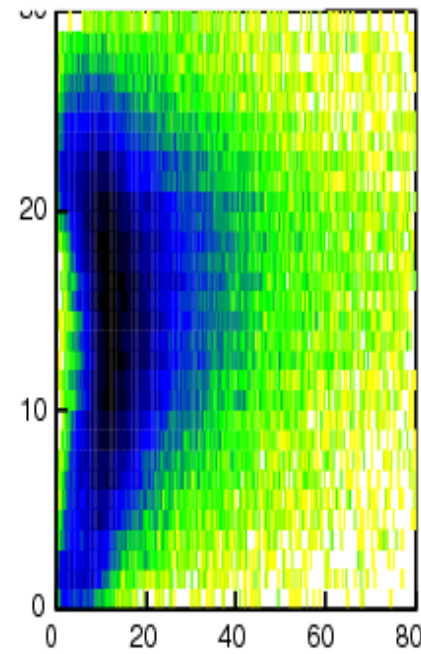
0.5 -> 1 MIPs

thresh100\_transLongProfile\_330423



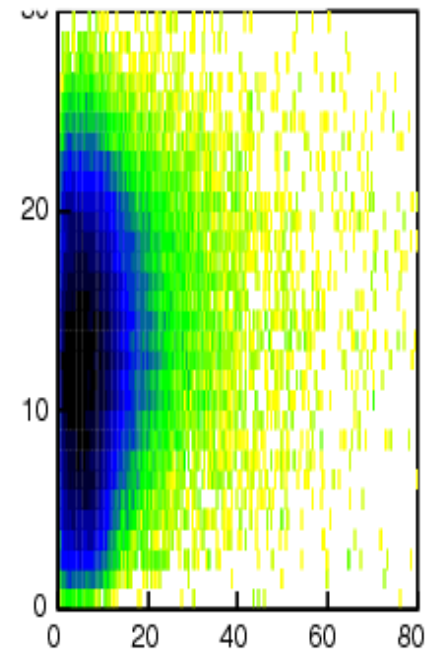
1 -> 5 MIPs

thresh500\_transLongProfile\_330423



5 -> 10 MIPs

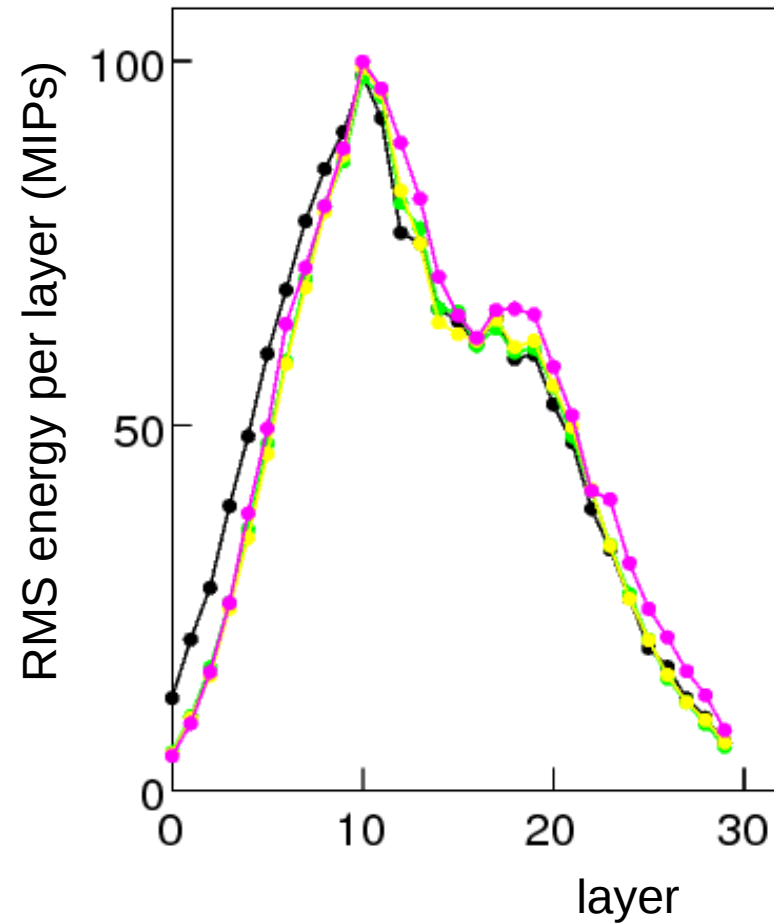
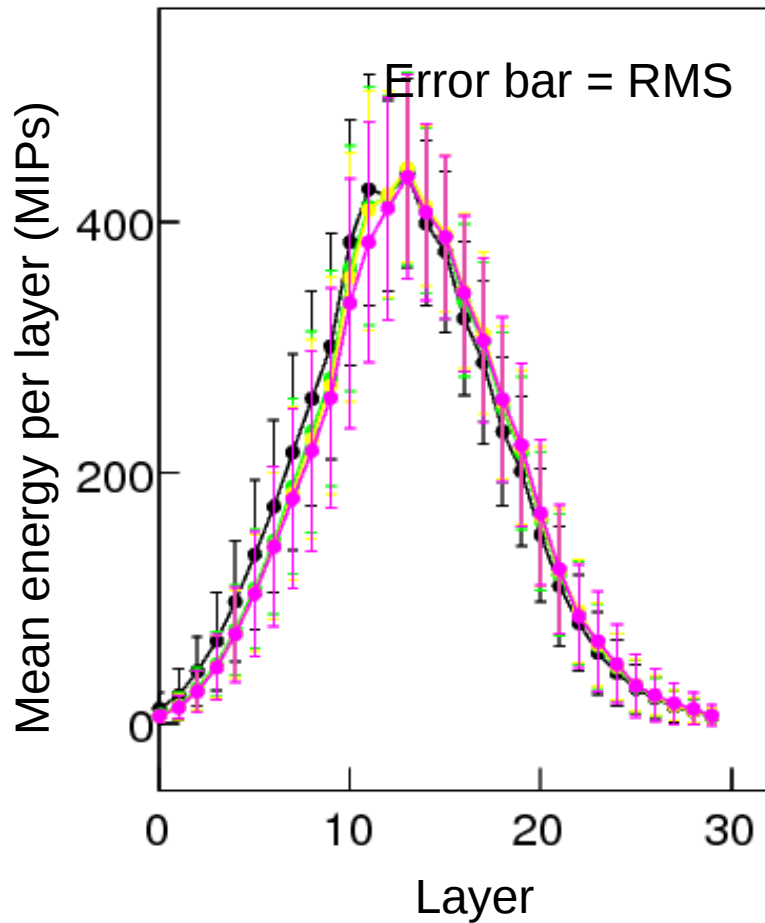
thresh1000\_transLongProfile\_330423



> 10 Mips

# event-by-event energy fluctuation in different calo layers

A few 40 GeV electron runs from 2007 (one colour per run)



Also starting to look at layer-to-layer correlations

## Summary & plans

Looking at various aspects of EM shower data

Various refinements need to be done

Compare these distributions to the simulation