

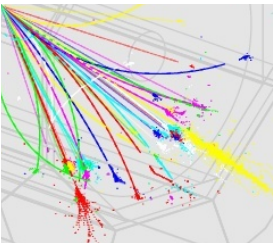
# CALICE Meeting

RAL 18.10.2007

M. Stanitzki

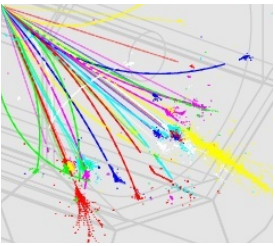


# What is on today ?



- Laser pulses
- SLIC simulation
- News from SiD



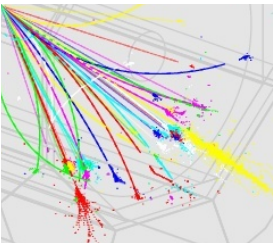


# Laser pulses

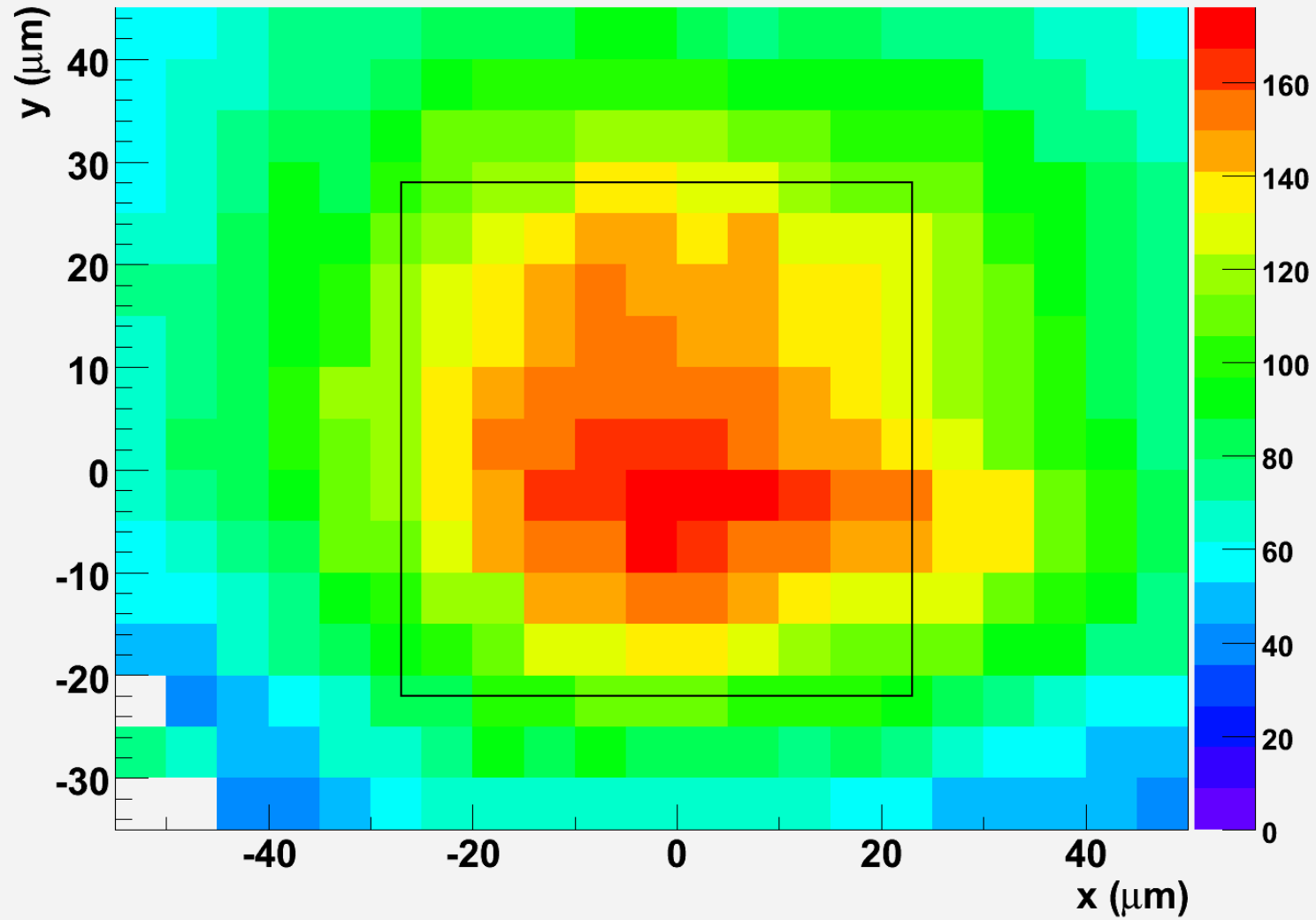
- Combined effort from
  - Giulio, Jamie, Konstantin, Marcel
- Testing the analog output
  - Shutter size 4x4 /5x5
  - 25 pulses per second
  - deep-p-well sensor (“Jerry”)
- Simulation setup



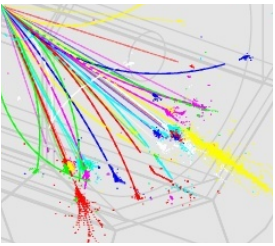
# Plots I



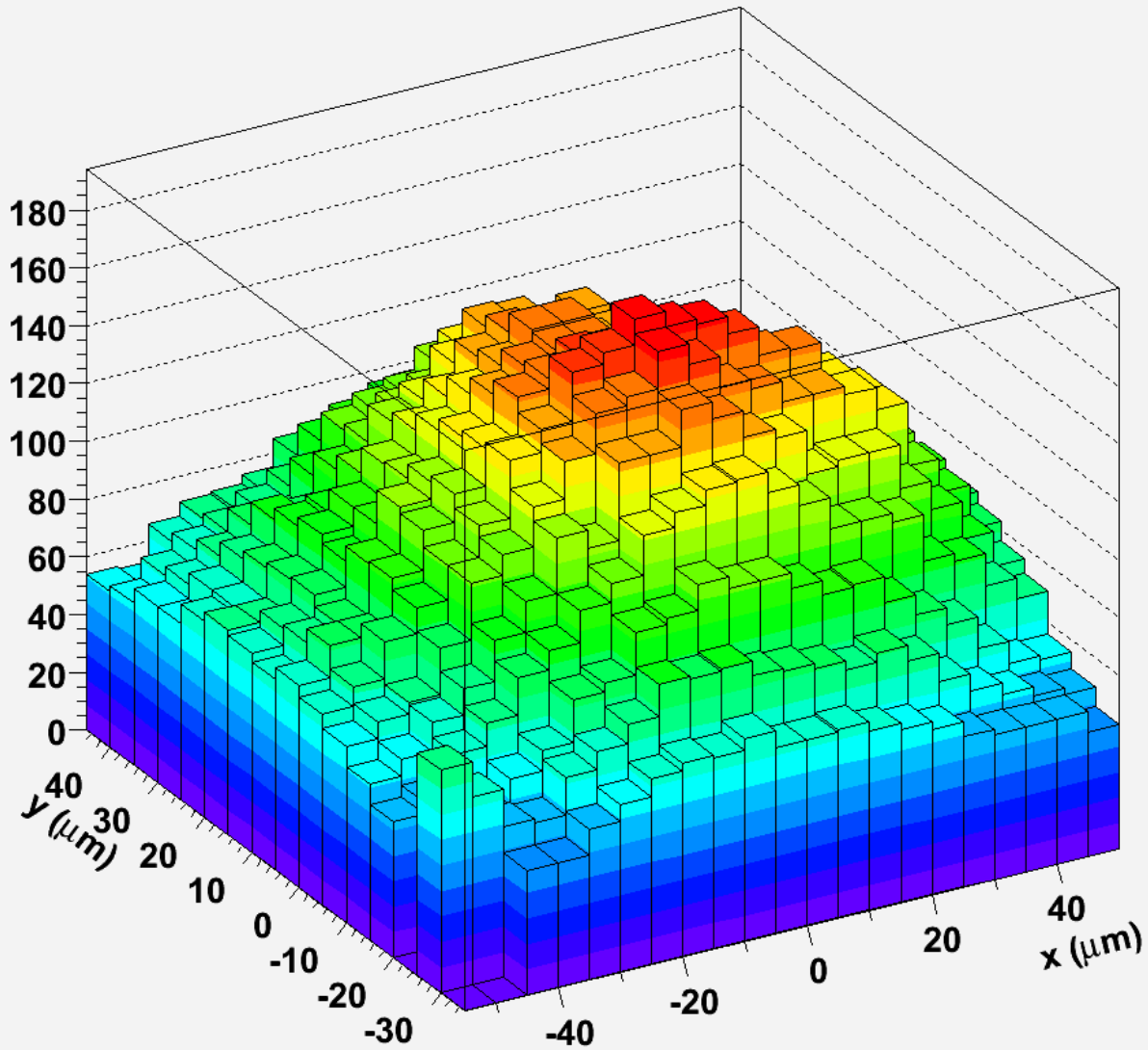
**ASIC1 (Jerry) Preliminary**

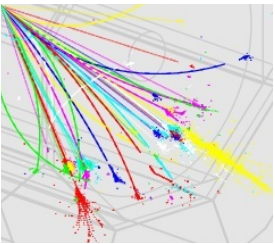


# Plots II

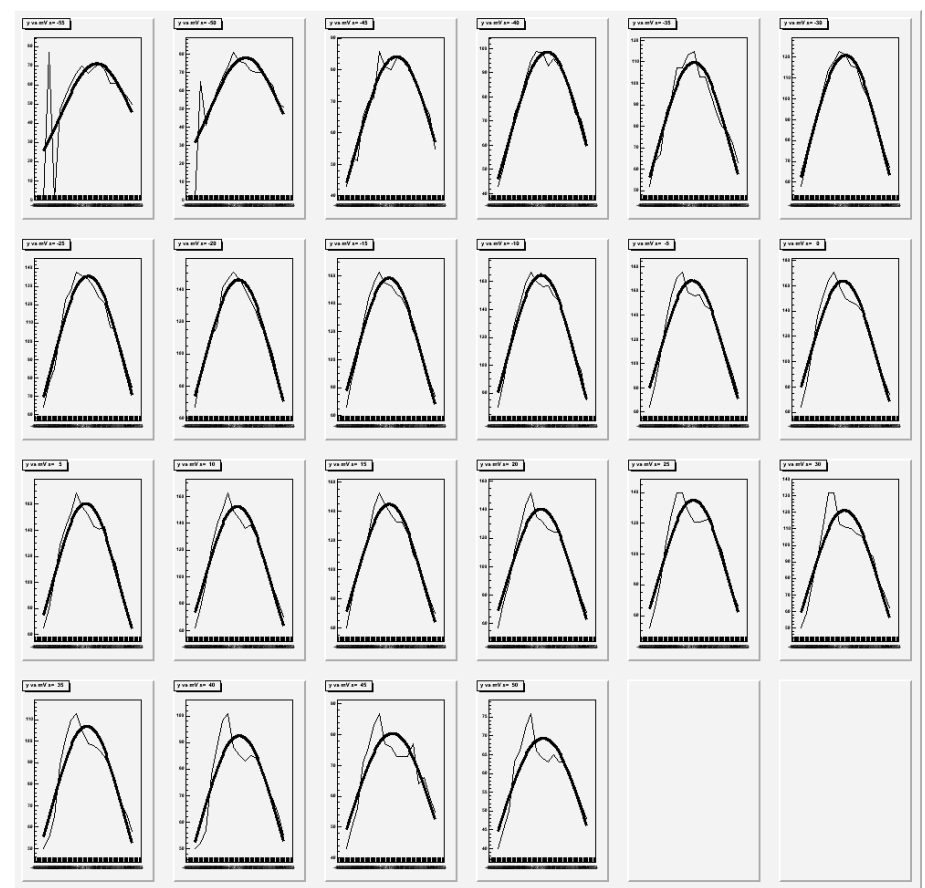
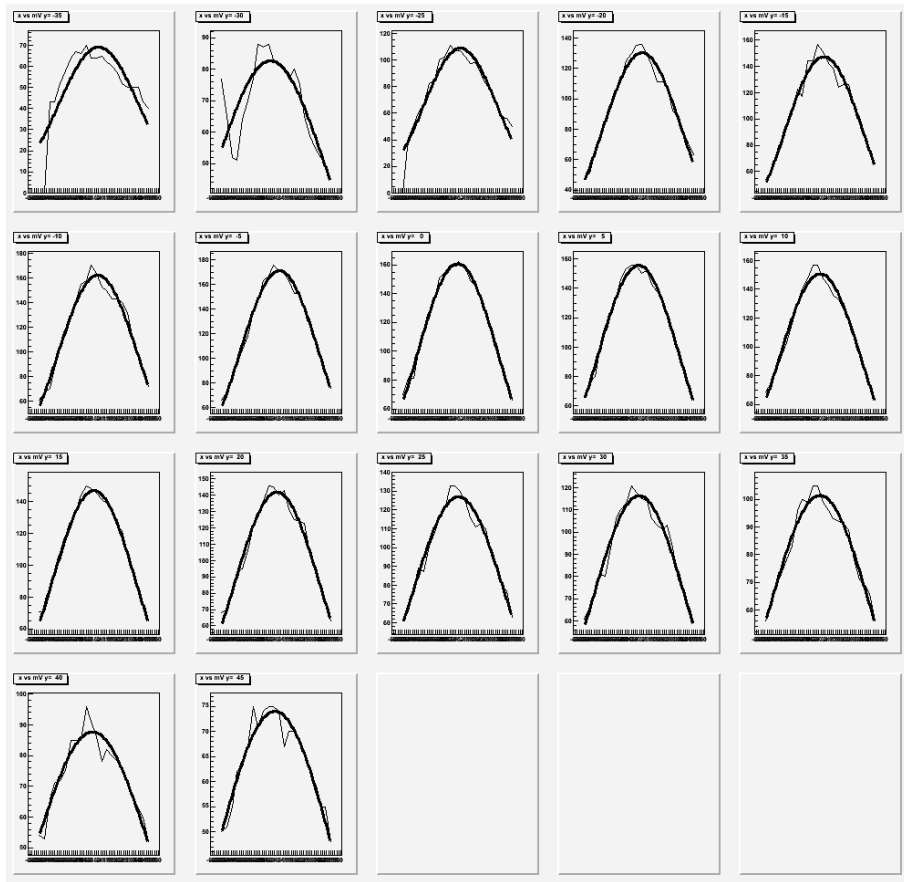


**ASIC1 (Jerry) Preliminary**

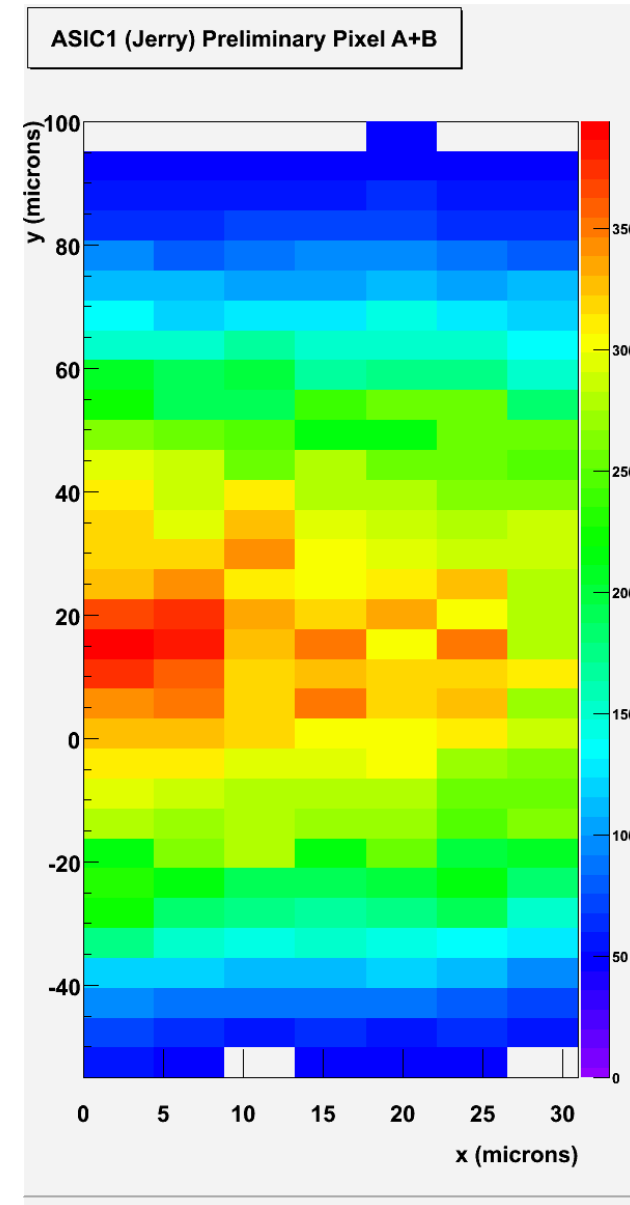
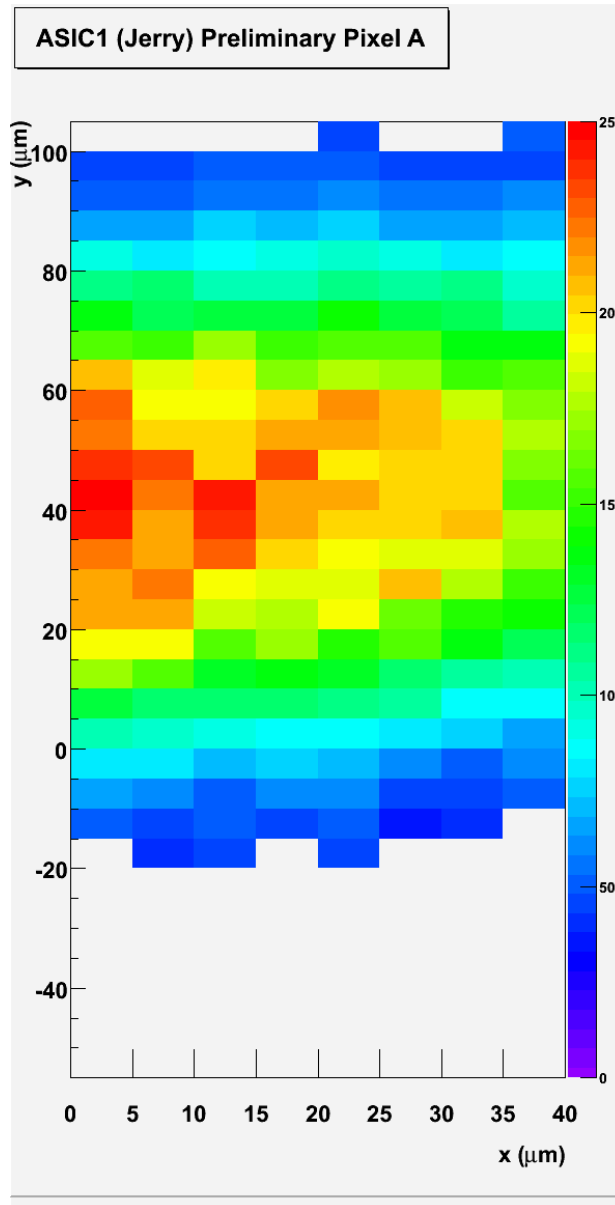
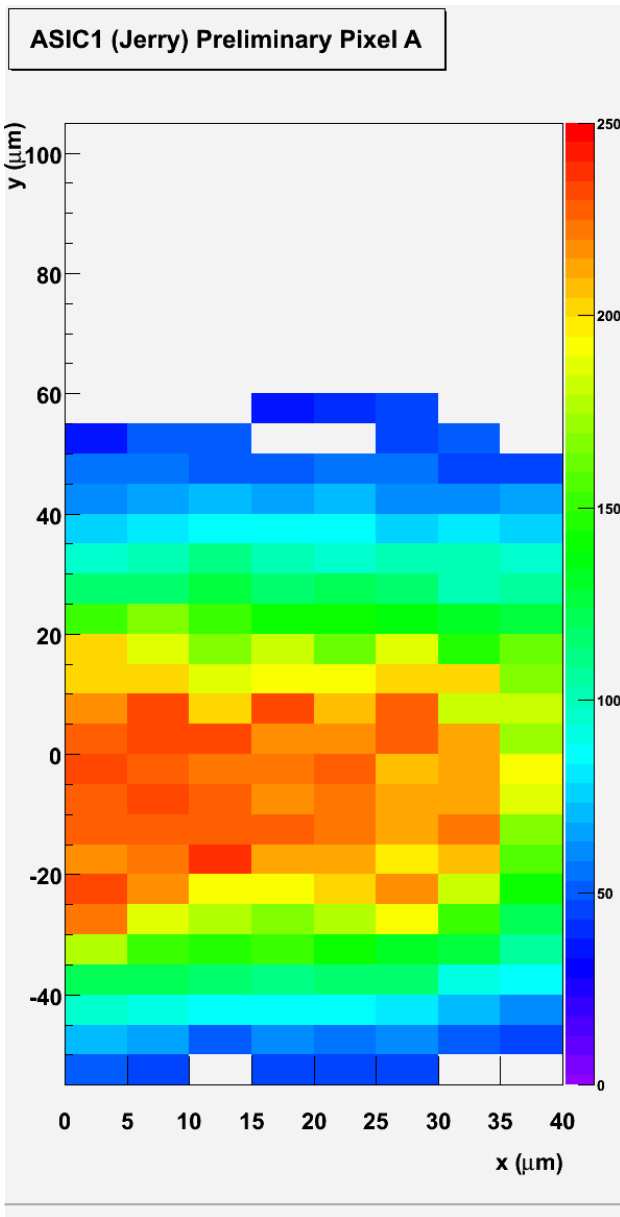
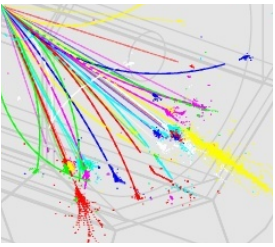




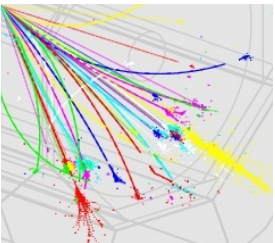
# Plots III



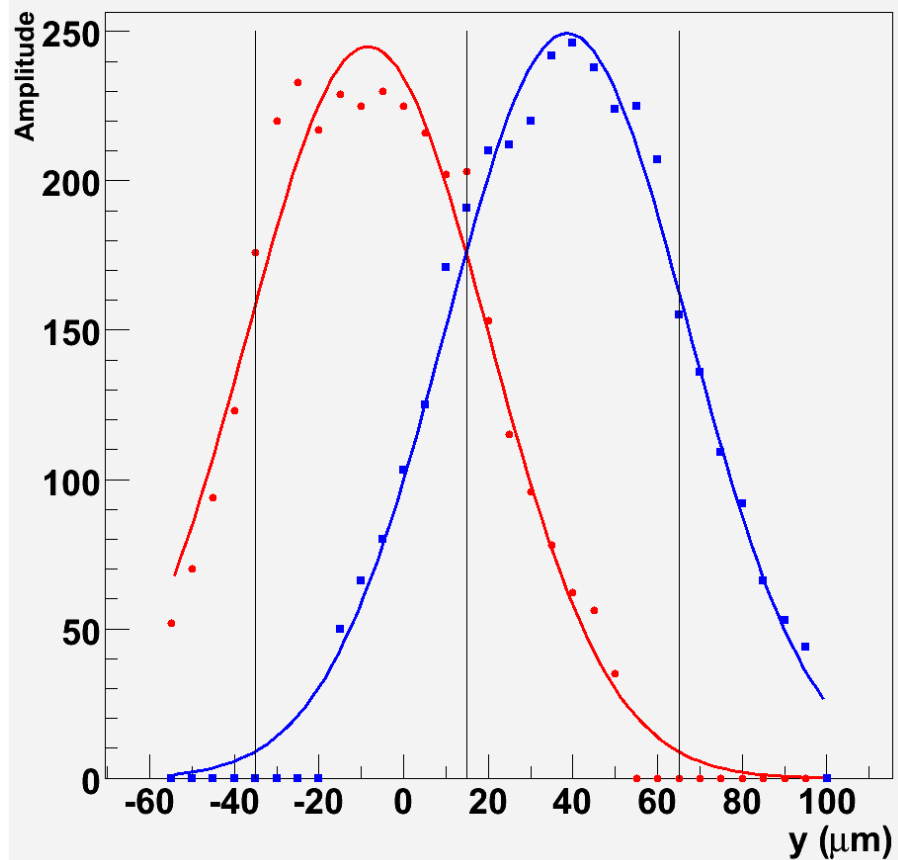
# Plots IV



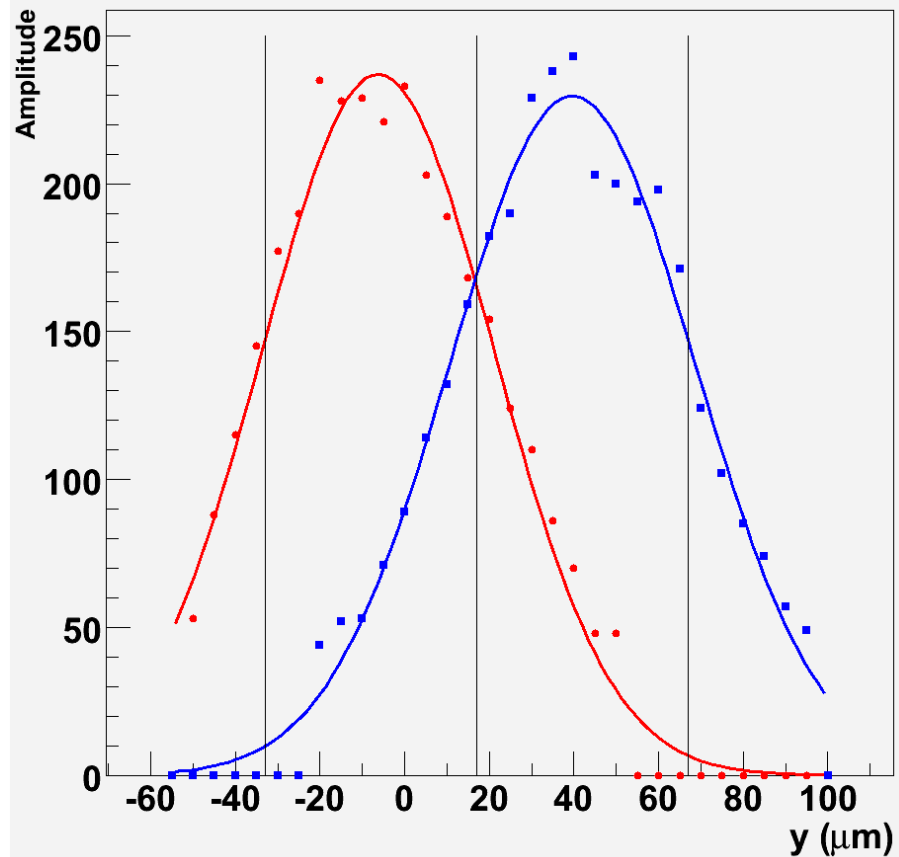
# Plots V



ASIC1 (Jerry) Preliminary Pixel A+B x=0  $\mu\text{m}$

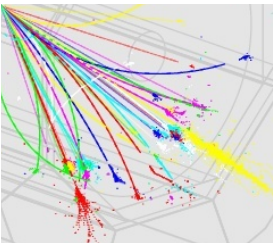


ASIC1 (Jerry) Preliminary Pixel A+B x=10  $\mu\text{m}$

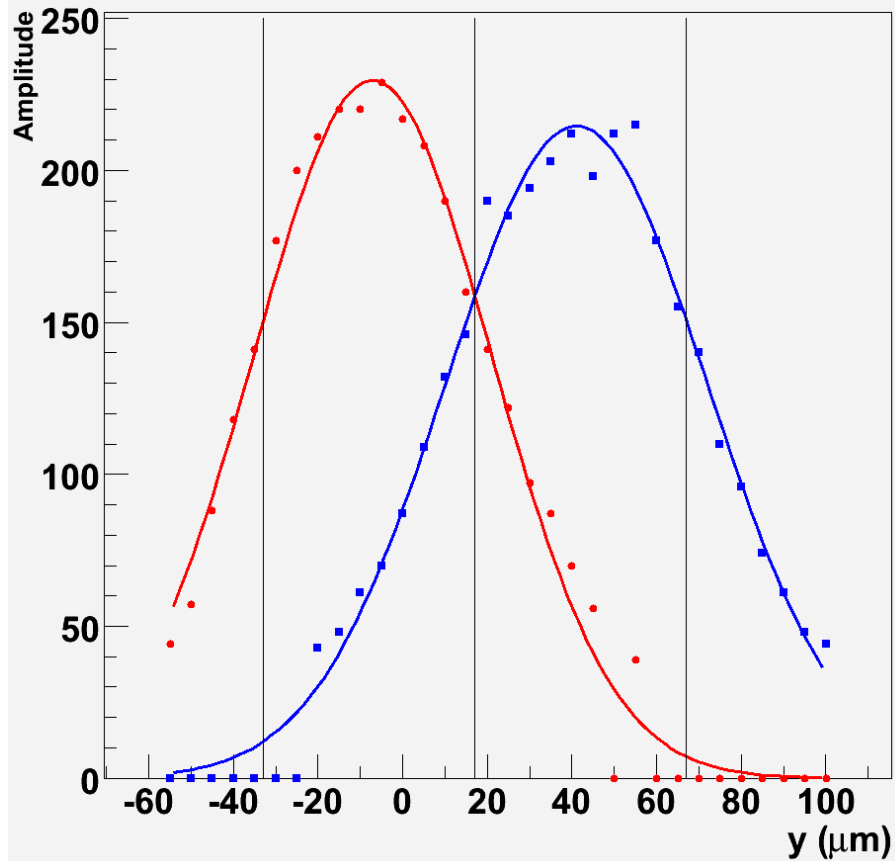




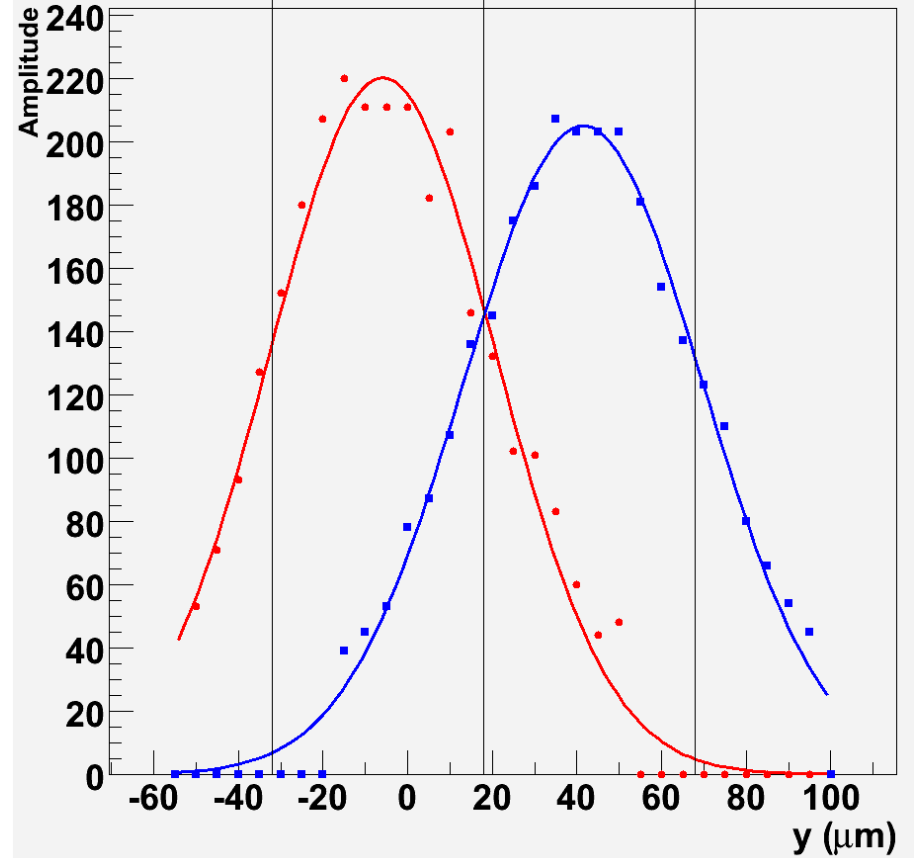
# Plots VI



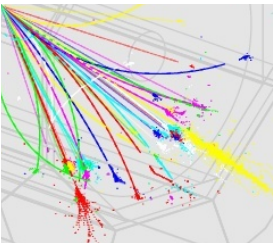
ASIC1 (Jerry) Preliminary Pixel A+B  $x=20\ \mu\text{m}$



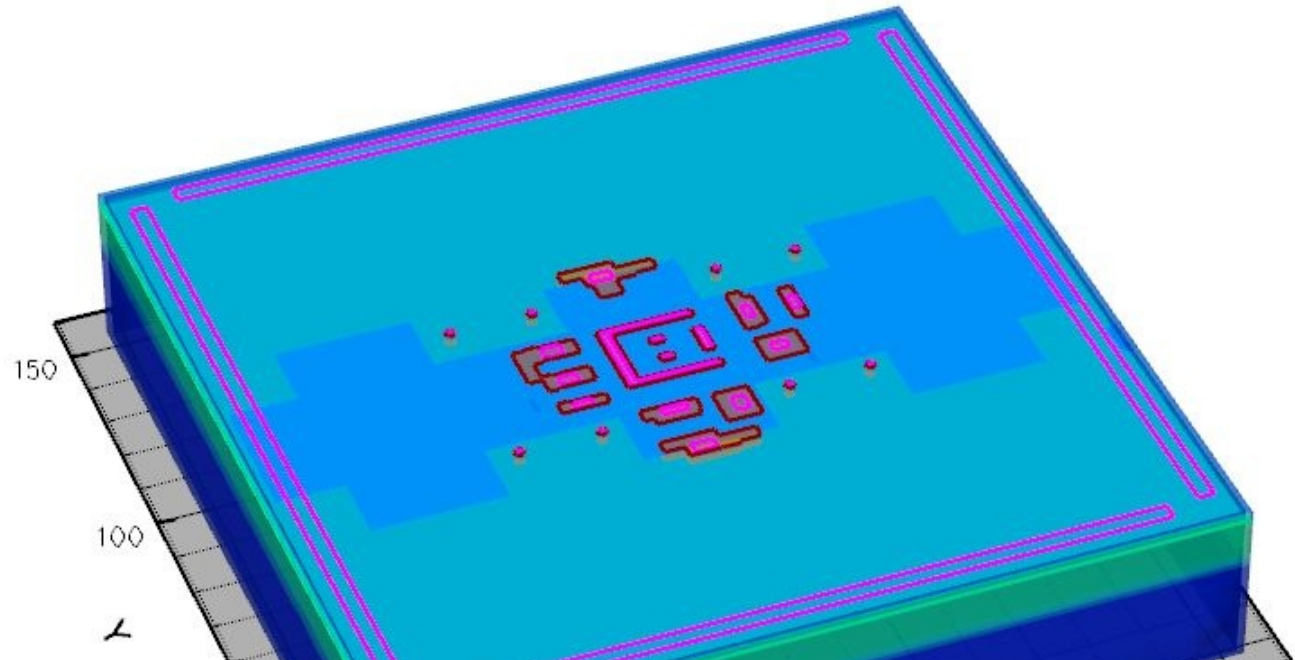
ASIC1 (Jerry) Preliminary Pixel A+B  $x=30\ \mu\text{m}$

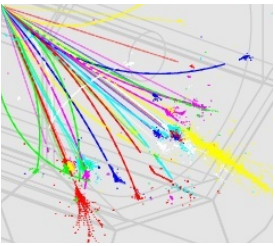


# Simulation Setup



- Running right now
- both
  - deep-p-well
  - standard
- Results soon

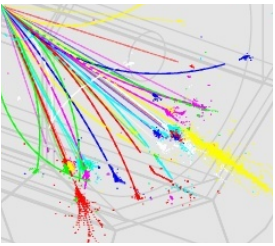




# Running SLIC

- Easy ....
- Actually good support from Norman
- Have two models sid01 and sid01maps
- Need to enable “detailed shower mode”
- Anyone interested in running SLIC ?
  - Let me know
  - have all the files and settings



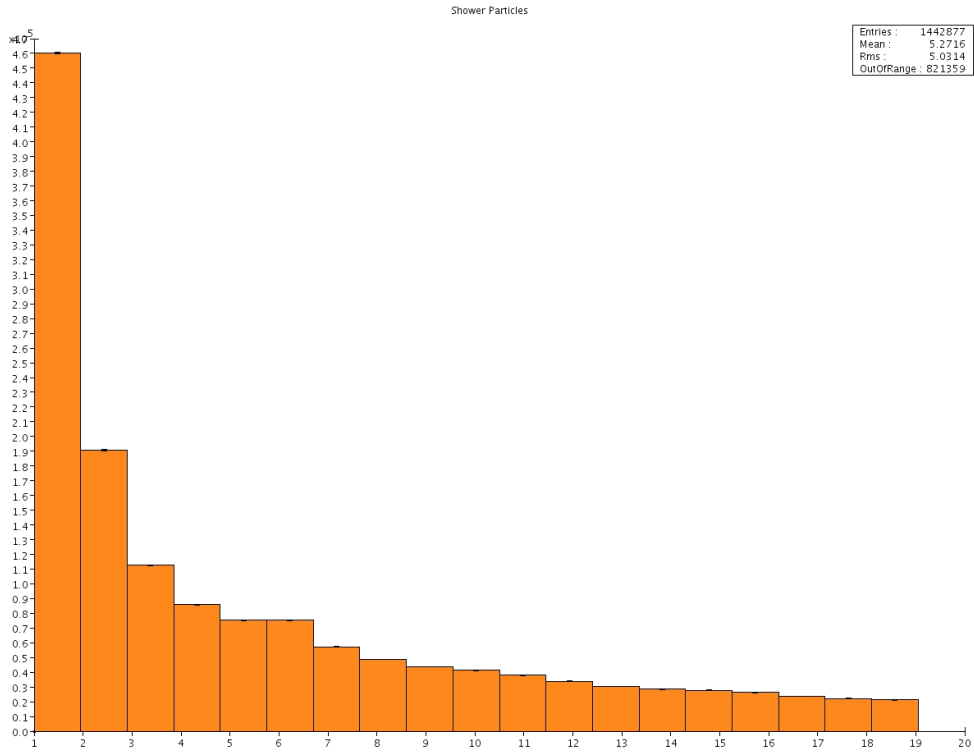
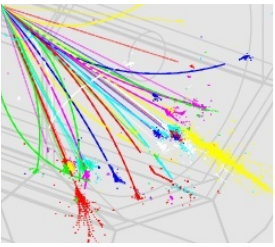


# The biggest advantage

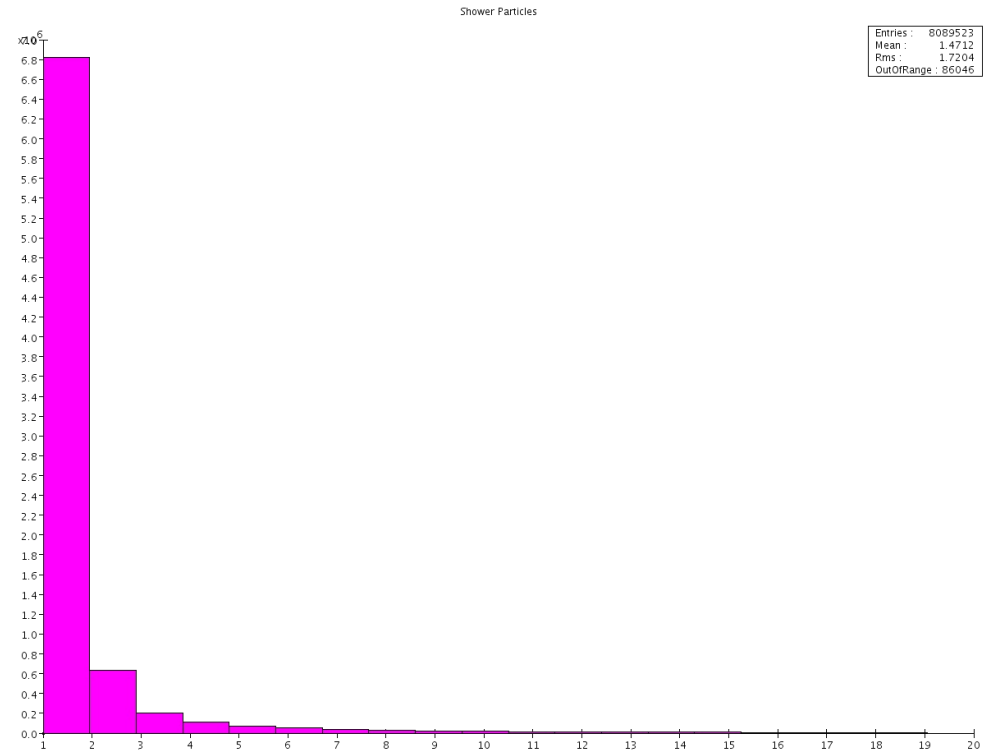
- Geometry description is easy
- unique detector names
  - one file for simulation, reconstruction...
  - name encoded in LCIO file
  - it means something
  - can't change parameters in SLIC on run time
  - have to provide separate xml for each variant
- it is faster than Mokka ...



# Results

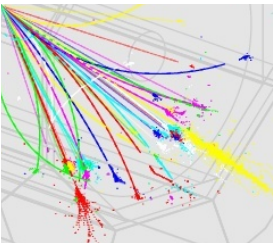


SID01 4x4 mm



MAPS 50x50 microns

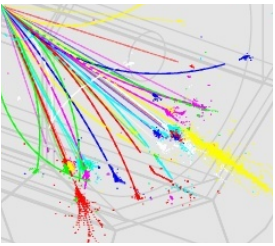
using 20 GeV electrons in both cases



# Ongoing PFA effort in SiD

- Trying to understand differences
  - detector
  - simulation
  - algorithms
  - actually we are learning a lot
- Some things found
  - Mokka has “wrong” physics lists per default
  - should be LCPhys
  - but is LHEP
  - This has an impact on the results



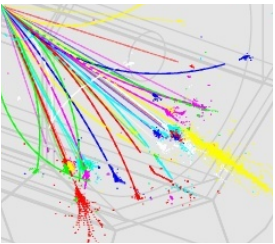


# Comparing Detectors

- using LDC00Sc
  - LDC01Sc currently is broken in Pandora (not clear why)
  - No time to debug this as well
- Vary parameters
  - B field
  - Radius
  - Ecal layers
- 2 points using  $Z \rightarrow uds$ 
  - 91 GeV
  - 200 GeV



# Some Results



Configuration	n/sqrt(E)	Jet energy
LDC00Sc	30.5	45
LDC00Sc 5T	31.2	45
LDC00Sc 30 layer ECAL	32.4	45
LDC00Sc Sid-ish 4T	32.6	45
LDC00Sc Sid-ish 5T	32.0	45
LDC00Sc Sid-ish 6T	33.8	45
LDC00Sc	36.7	100
LDC00Sc Sid-ish 4T	42.7	100
LDC00Sc Sid-ish 5T	41.0	100
LDC00Sc Sid-ish 6T	39.8	100

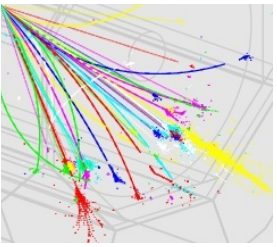
Errors  $\pm 0.2-0.3$

**100 GeV Numbers very preliminary**





# My conclusions



- B field helps for higher energies
  -
- Radius matters
  - I assume the separation of the neutrals is important
- Make you Calorimeter as deep as possible
  - 30+40 is standard
  - go to 40+40 ?
  - or 30+50 ?
- there is a lot of algorithm dependence ...
- leaving aside optimizations for a specific model

