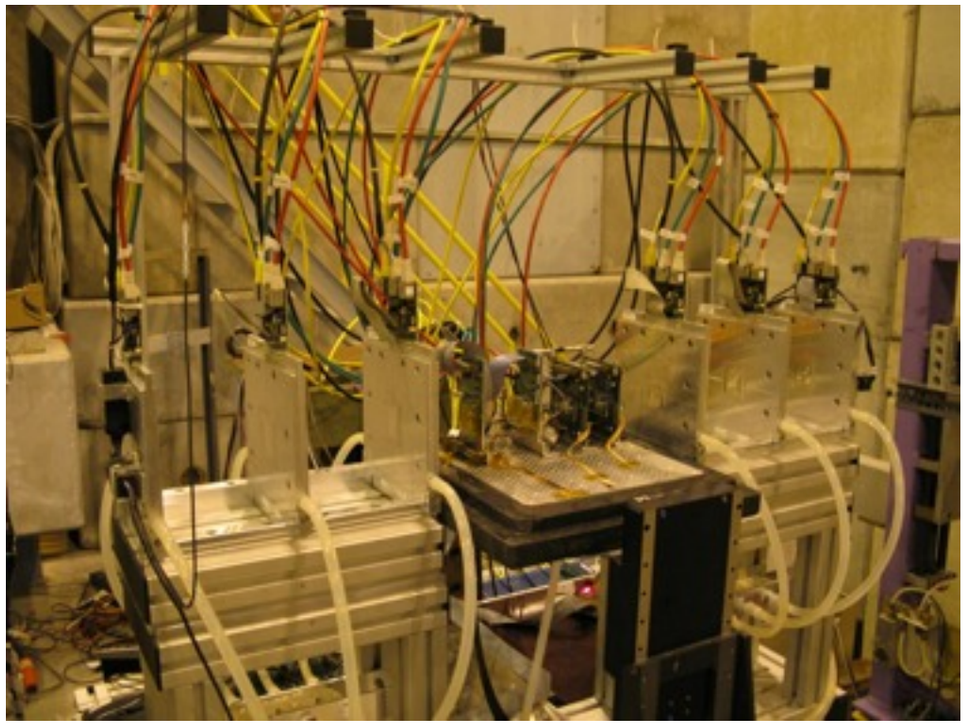
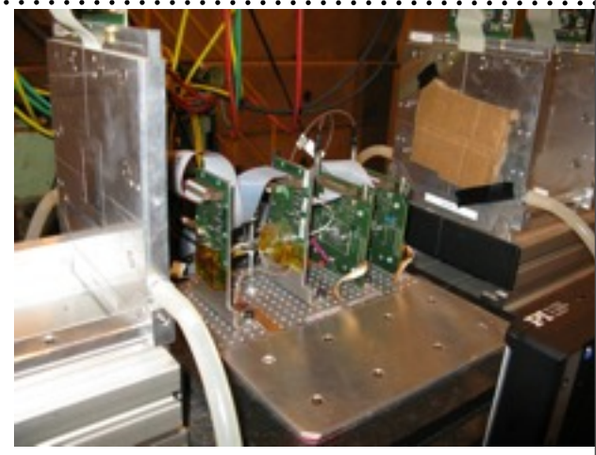
IBL Test beam at CERN: 3D-FBK sensors



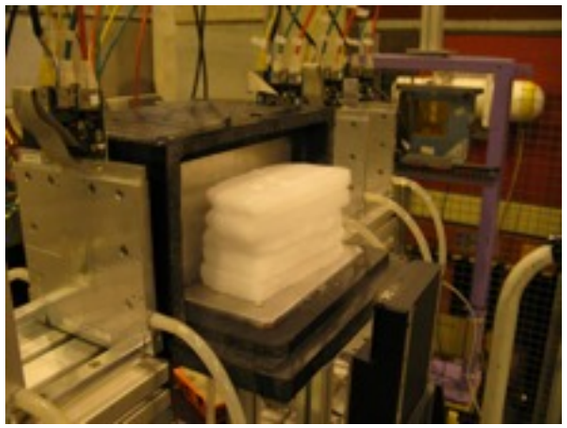
Andrea Micelli

Test beam and lab measurements at CERN



IBL TestBeam: dal 25 ottobre al 08 novembre 2010.
Due sensori FBK usati:

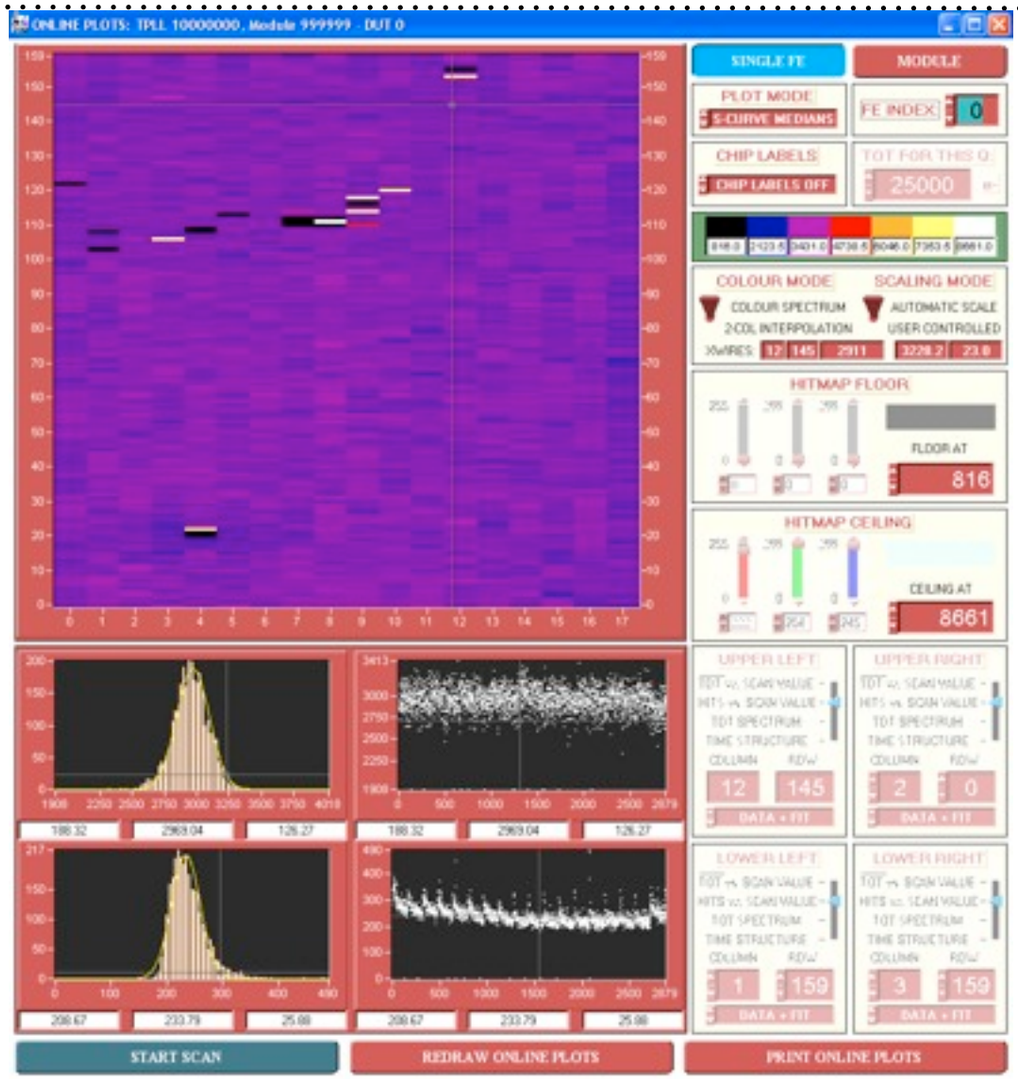
- FBK-3E13M:
  - irrad. 5e15 n_{eq}/cm^2
  - ricalibrato prima della presa dati (dopo averlo raffreddato)
  - HV = -70V (V_{bd} ~ -80V, $I_{leakage}$ < 4μA)
  - efficienza 84%
- FBK-4E14M:
  - 3e15 n_{eq}/cm^2
  - stessa calibrazione usata a Genova (agosto, Andrea/Claudia)
  - HV = -50V (V_{bd} ~ -60V, $I_{leakage}$ < 0.1μA)
  - efficienza 46%
  - rimosso per l'efficienza troppo bassa



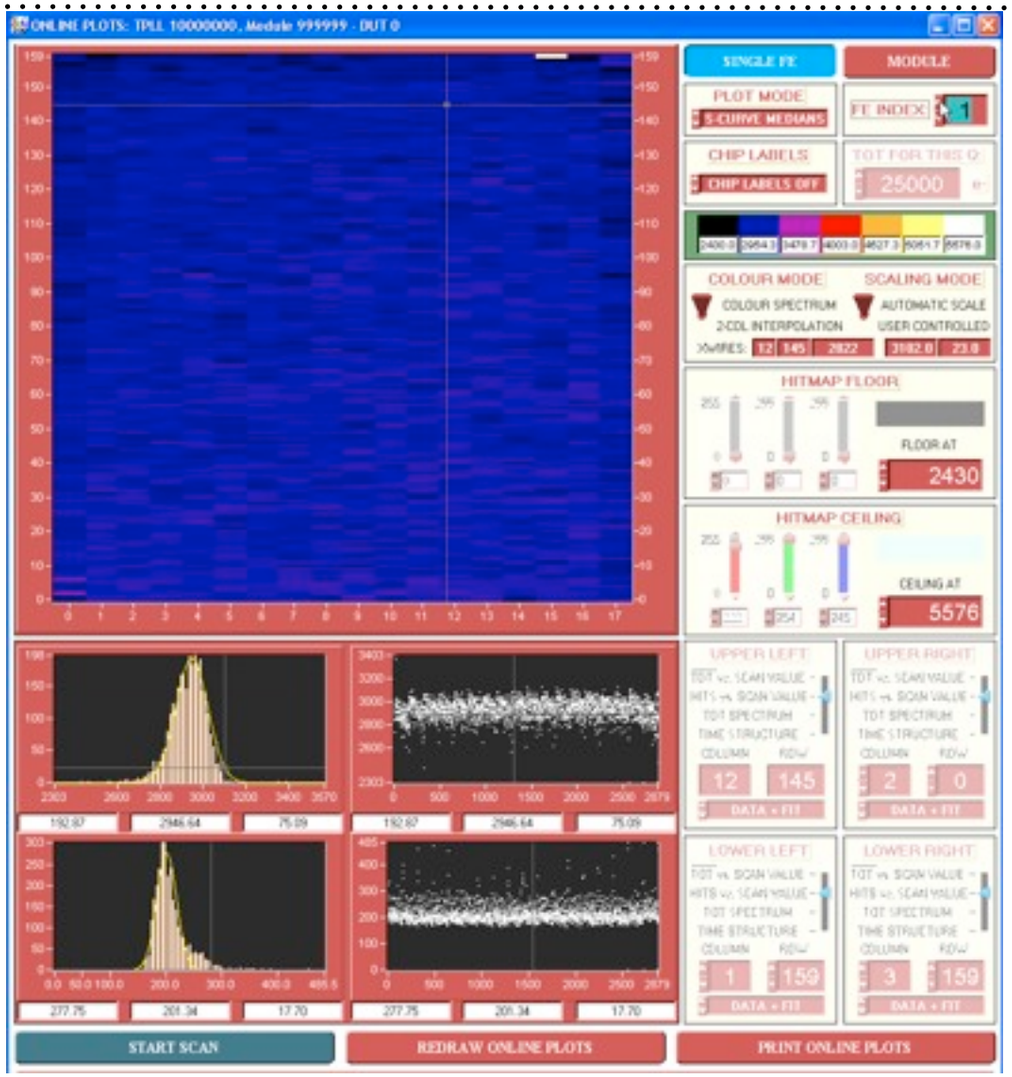
FE Tuning: Threshold = 3200e^-
60 TOT @ 20ke^-
Temperatura: ~ -50°C (ghiaccio secco, Dortmund cooling box)

more info: https://twiki.cern.ch/twiki/bin/viewauth/Atlas/IBLTBoct2009

Test beam and lab measurements at CERN



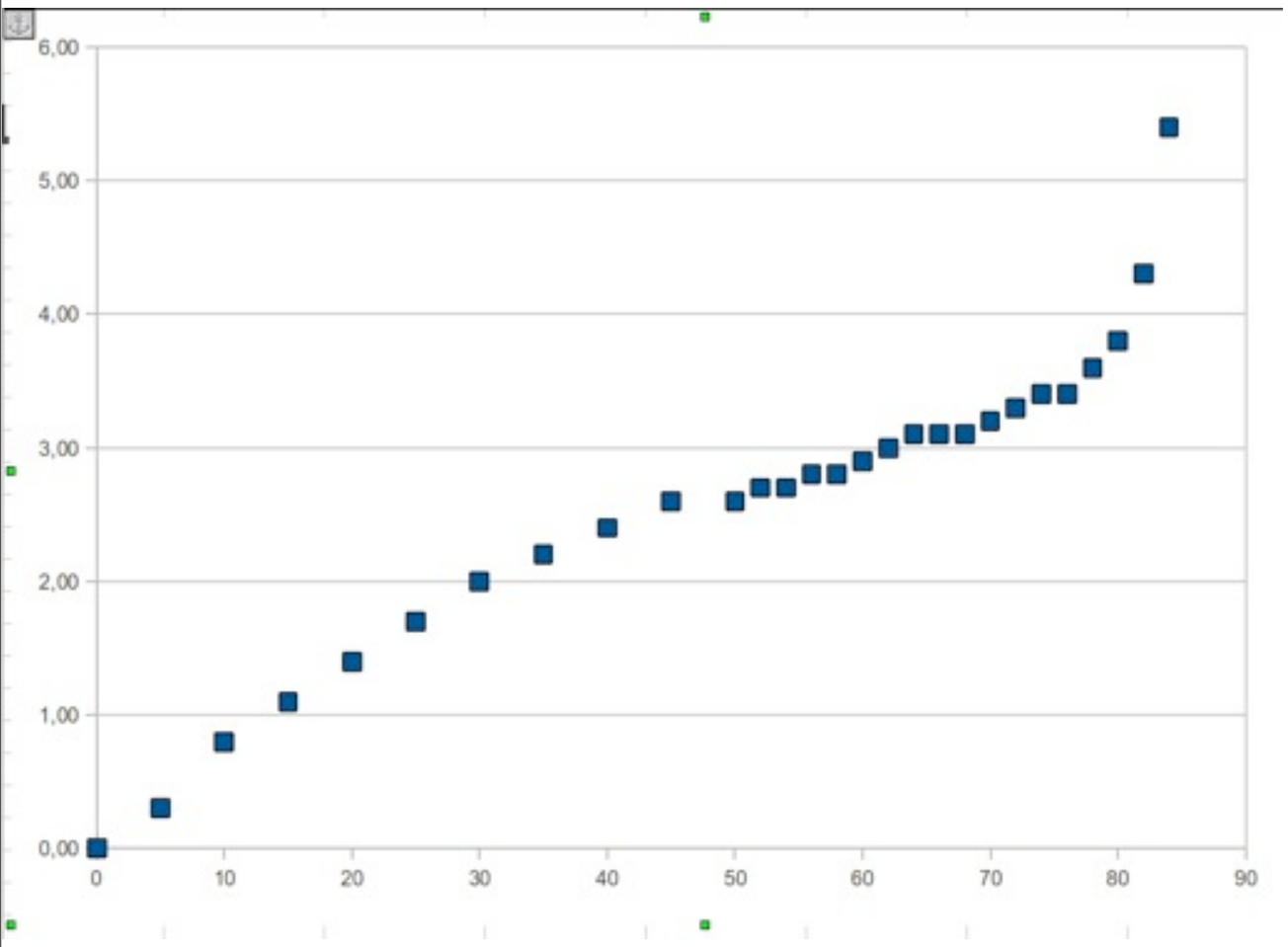
FBK-3E13M (5e15 n_{eq}/cm^2):
- Threshold REAL= 2969,04e^-
- 60 TOT @ 20ke^-



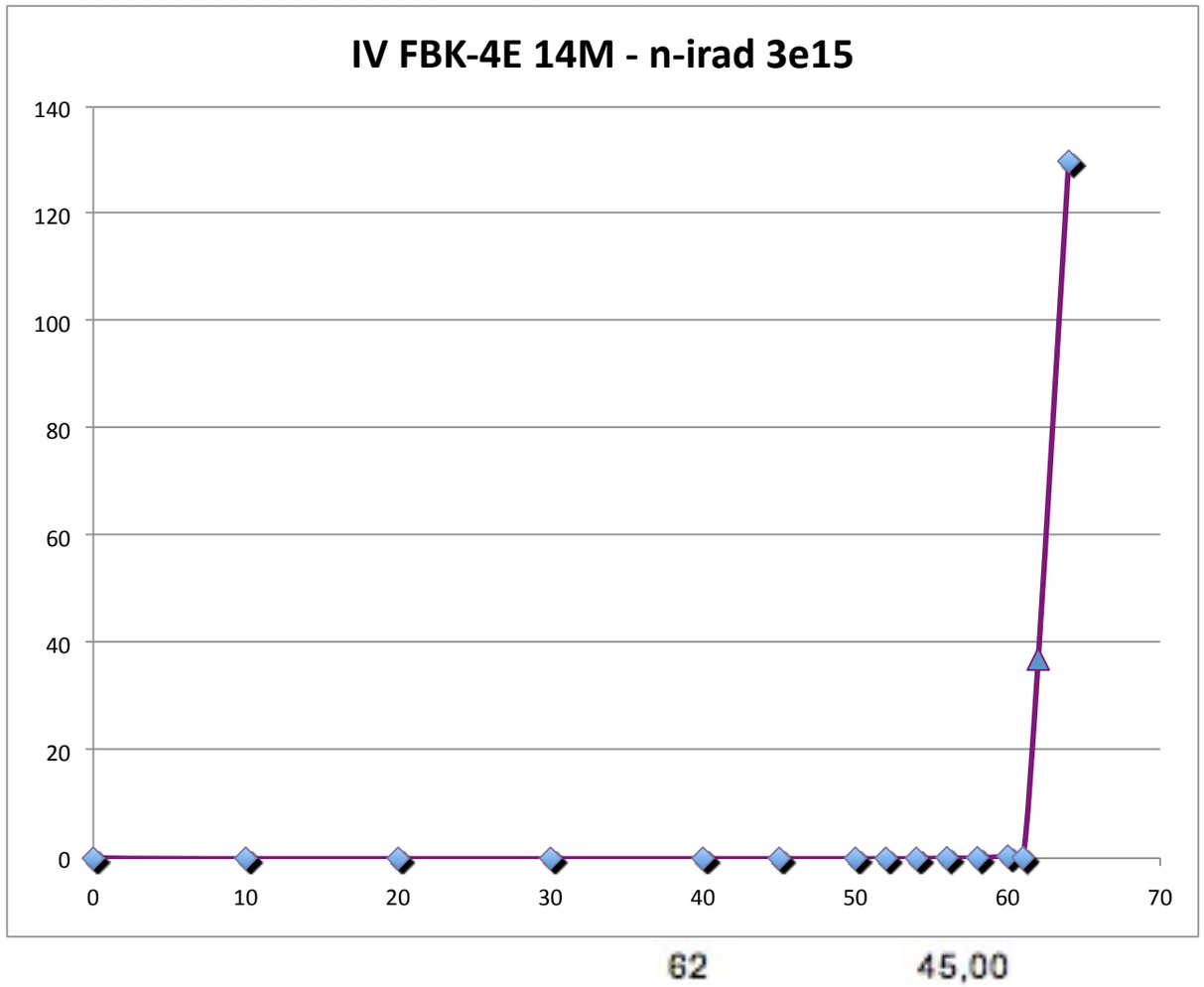
FBK-4E14M (3e15 n_{eq}/cm^2):
- Threshold REAL= 2946,64e^-
- 60 TOT @ 20ke^-

Temperatura sulla NTC : ~ -55/57°C

Test beam and lab measurements at CERN

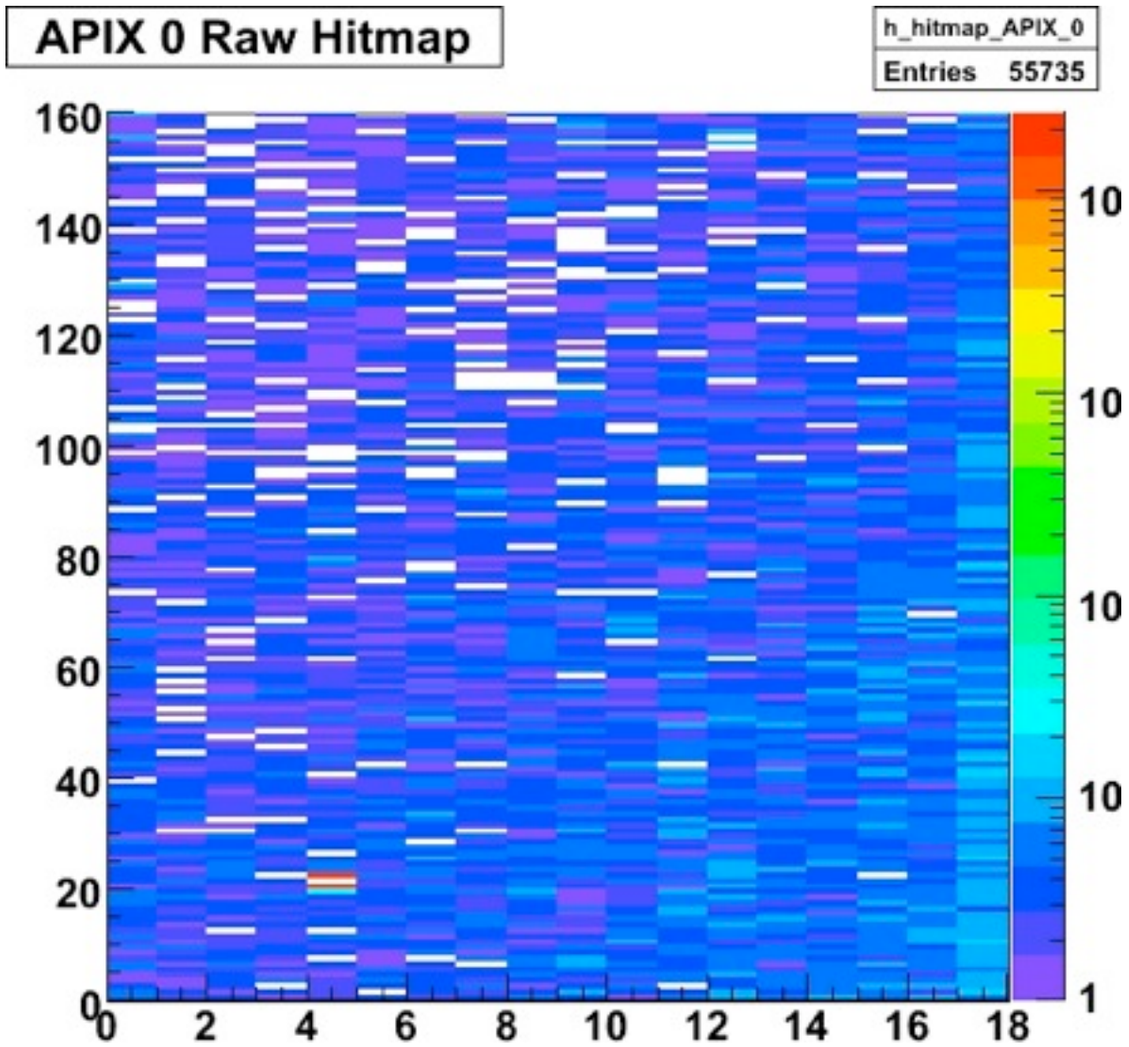


FBK-3E13M (5e15 n_{eq}/cm^2)

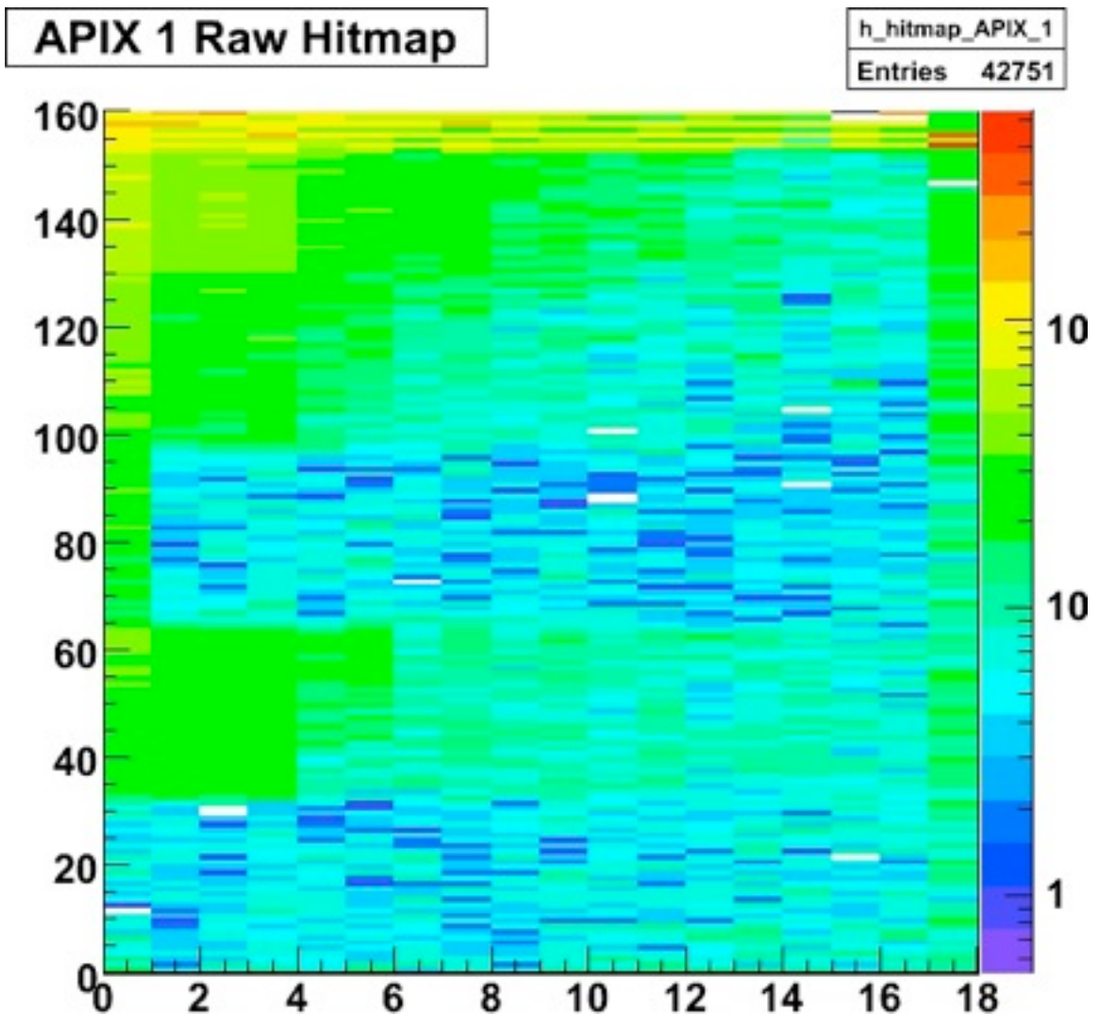


FBK-4E14M (3e15 n_{eq}/cm^2)

Test beam and lab measurements at CERN

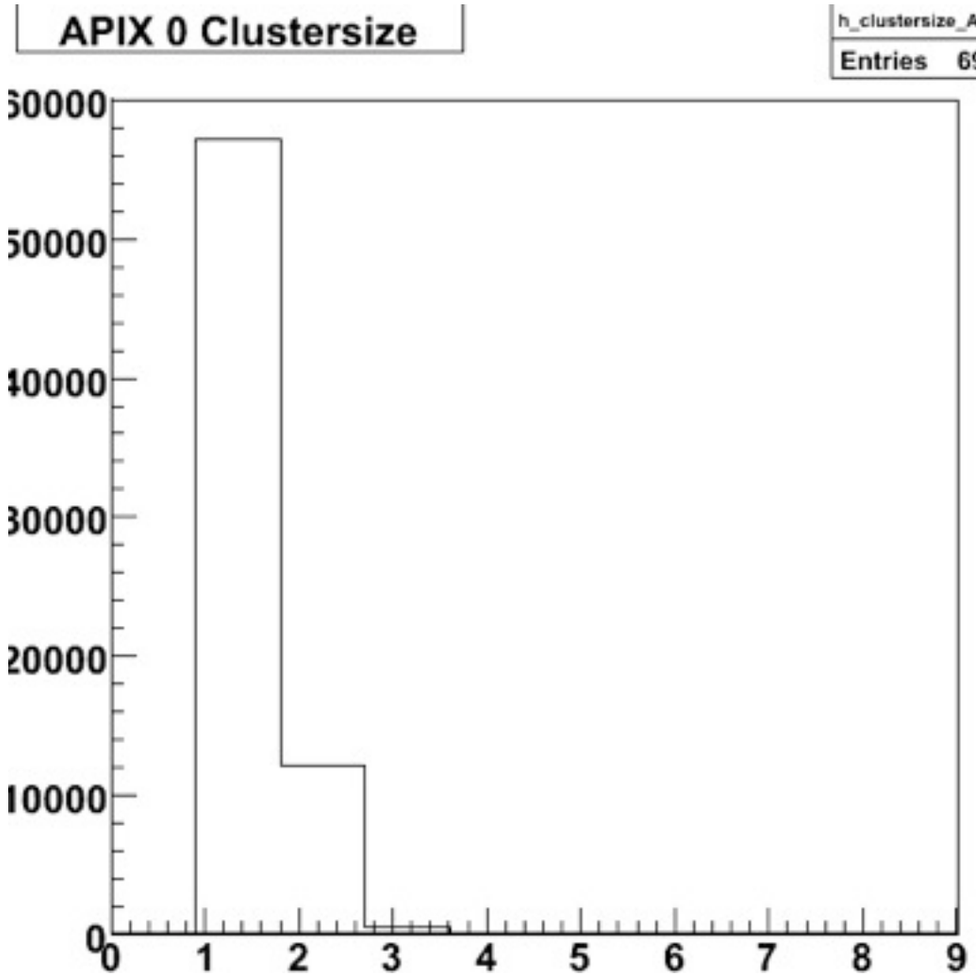


FBK-3E13M (5e15 n_{eq}/cm^2)

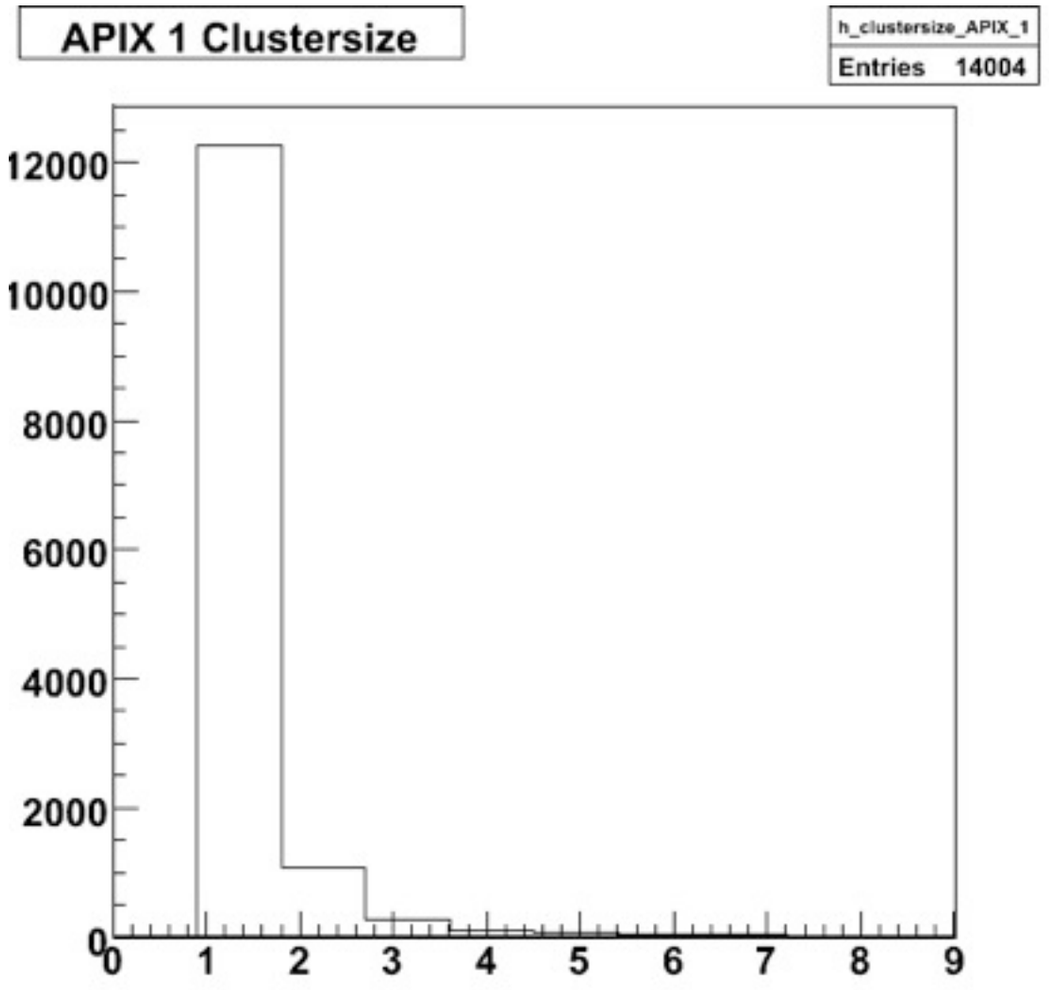


FBK-4E14M (3e15 n_{eq}/cm^2)

Test beam and lab measurements at CERN

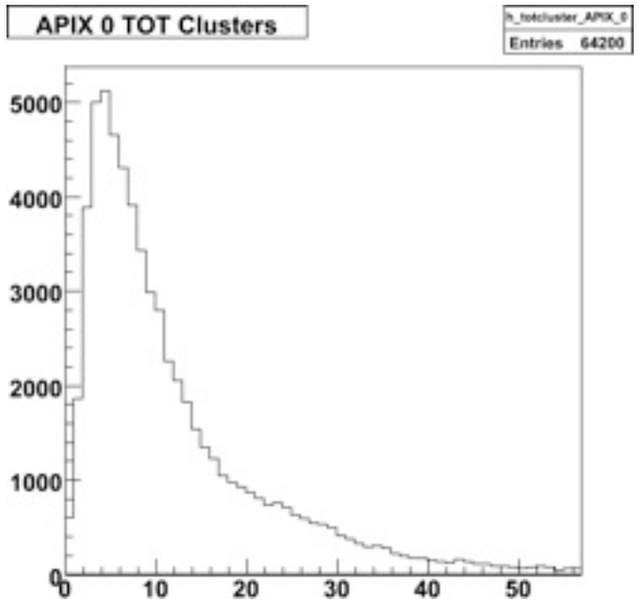


FBK-3E13M (5e15 n_{eq}/cm^2)

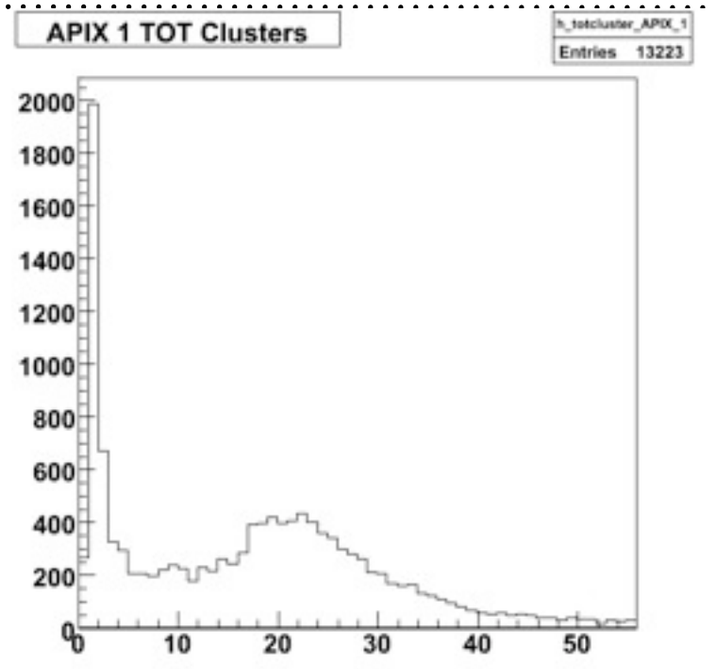


FBK-4E14M (3e15 n_{eq}/cm^2)

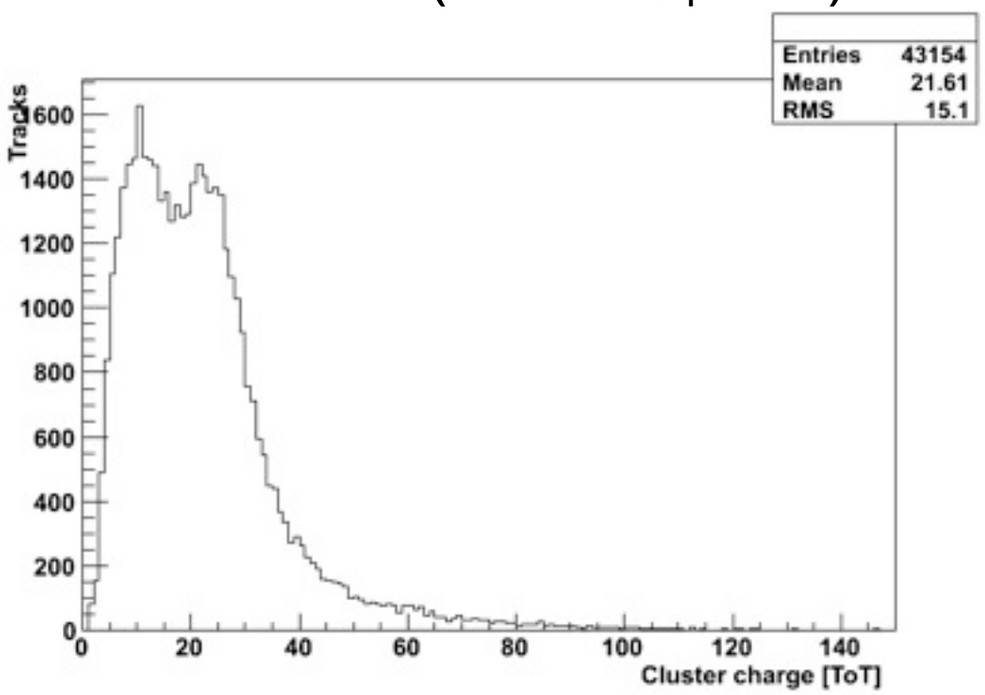
Test beam and lab measurements at CERN



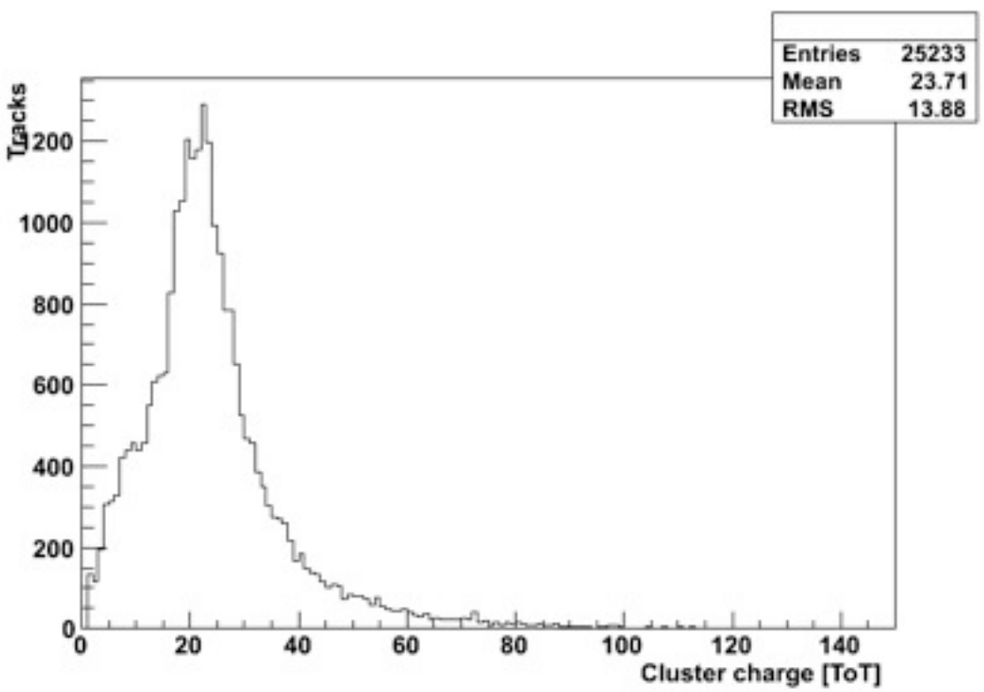
on-line



FBK-3E13M (5e15 n_{eq}/cm^2)

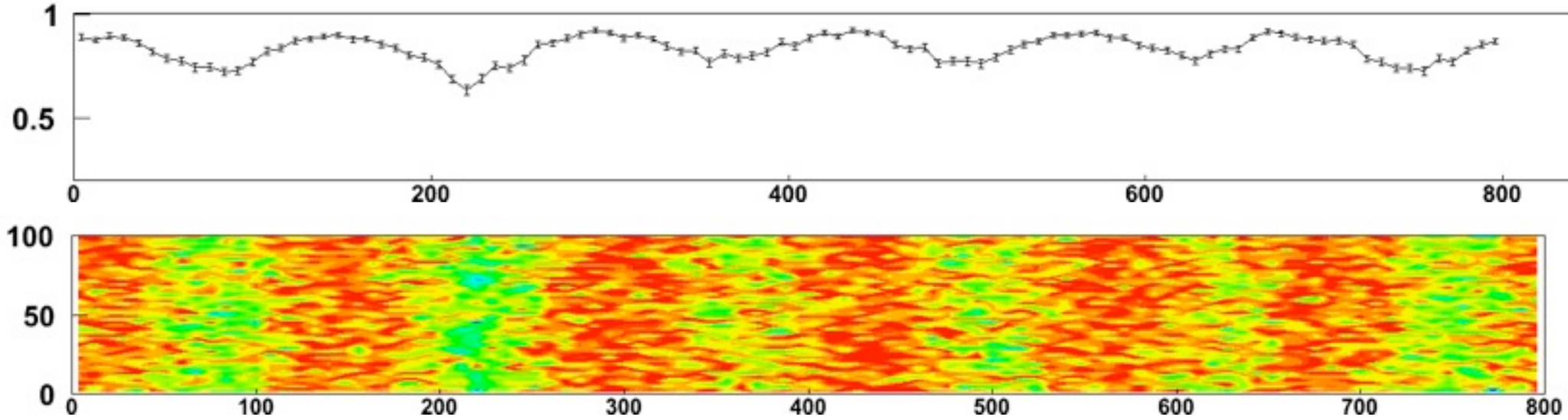


FBK-4E14M (3e15 n_{eq}/cm^2)

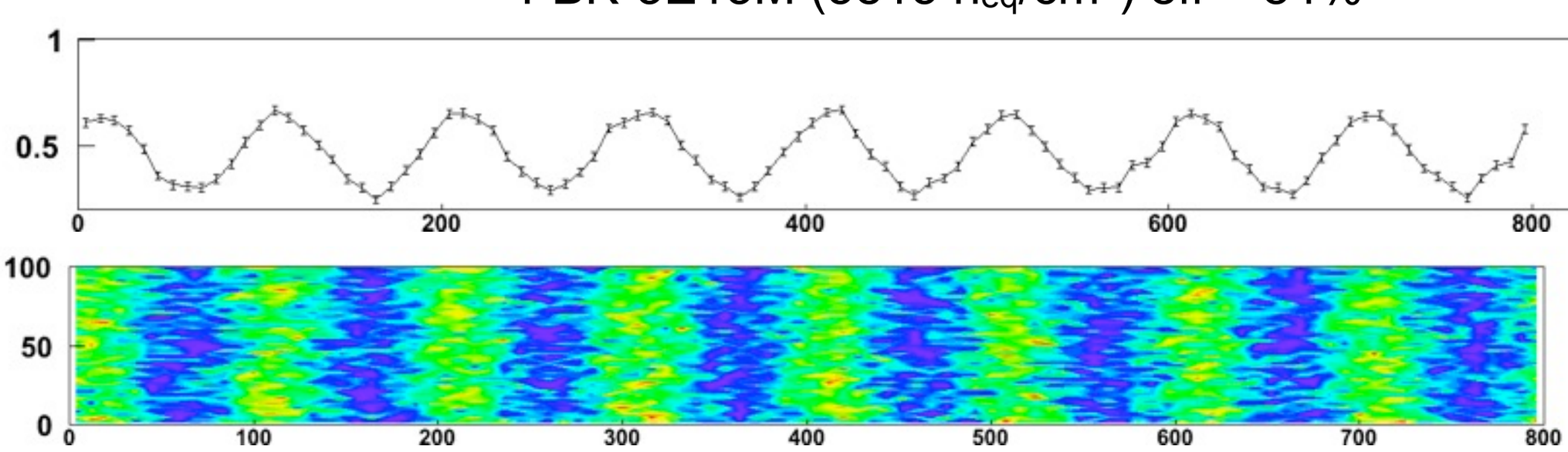


off-line [vedere prossima slide]

Test beam and lab measurements at CERN



FBK-3E13M (5e15 n_{eq}/cm^2) eff = 84%



FBK-4E14M (3e15 n_{eq}/cm^2) eff = 46%

analisi fatta da Håvard durante il TB per approssimativamente 60k traccie