



Lyon 1



Few slides about spikes

Hugues BRUN

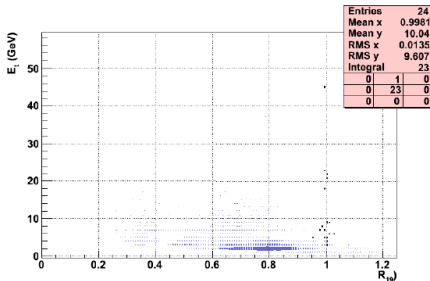
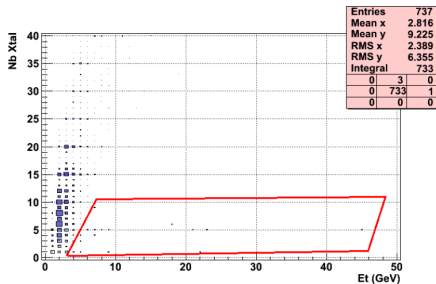
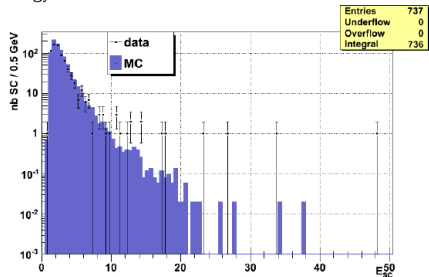
Institut de Physique Nucléaire de Lyon

CMS group meeting

24 février 2010

What is a spike?

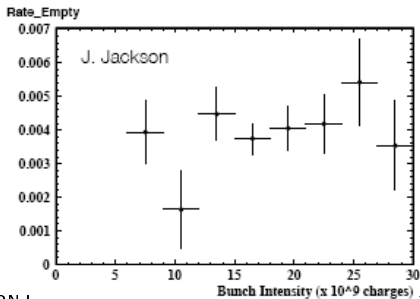
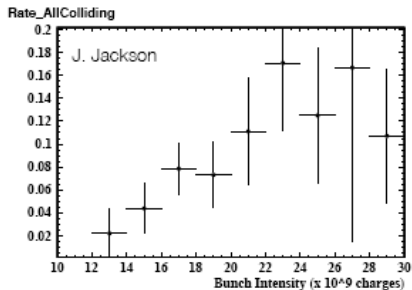
Energy RAW distribution with all SC



- some super-clusters with a very high energy reconstructed and a little number a crystals
→ non-physical energy!
- way to definite them $R_{19} = \frac{E_{seed}}{E_{3 \times 3}}$ near 1



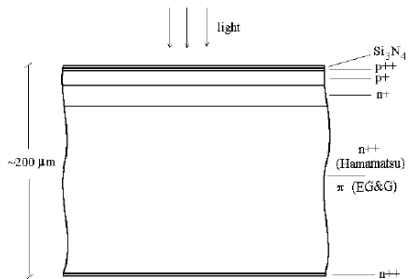
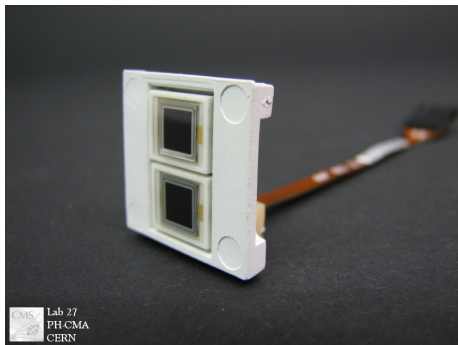
When and where?



- Where : everywhere in barrel (in fact not yet enough stat to see a pattern)
- two components :
 - one in empty BX seems constant
 - the other, in collision BX, increases with the luminosity



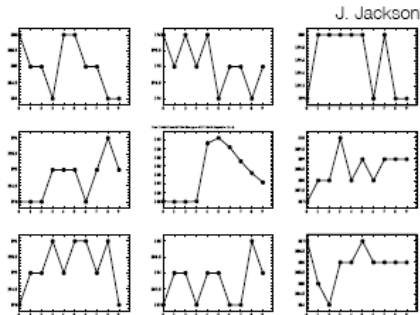
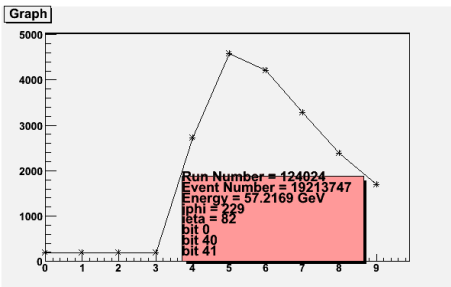
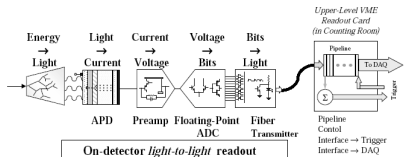
few words about ADC



- APD = avalanche photo-diode
- only in BARREL



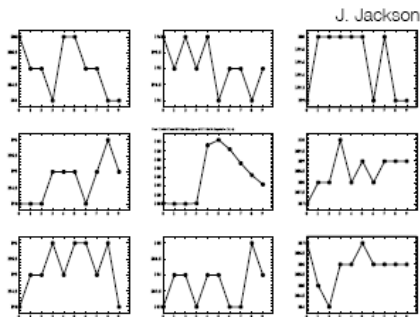
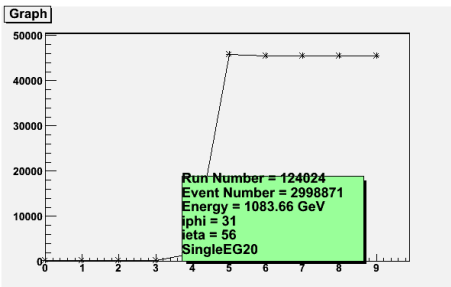
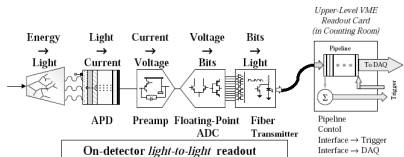
Few words about ADC



- the samples are a bit different (no scintillation components?)
- → the ADC is suspected



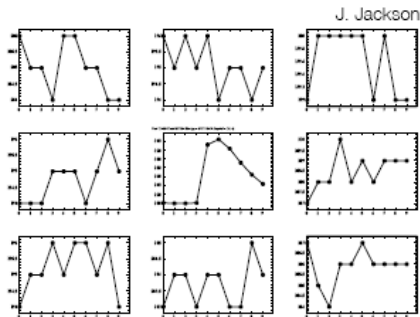
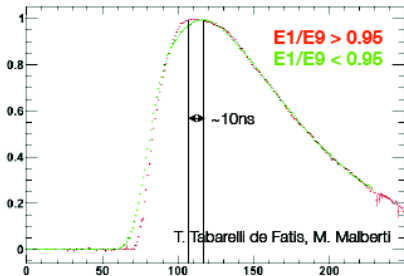
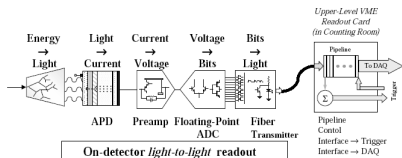
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Few words about ADC



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spike origin ?

- Leading theory is that some other particles can interact with the APD
- charged particles can make a pair hole-electron in the APD
- neutrals particles (neutrons, Klong) can also make a MIP in it ...

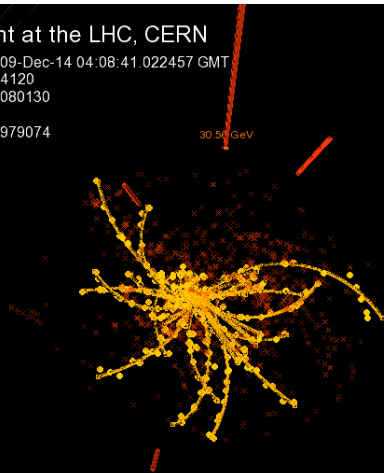


spike origin ?



CMS Experiment at the LHC, CERN

Data recorded: 2009-Dec-14 04:08:41.022457 GMT
Run: 124120
Event: 10080130
Lumi section: 33
Orbit: 33979074
Crossing: 51

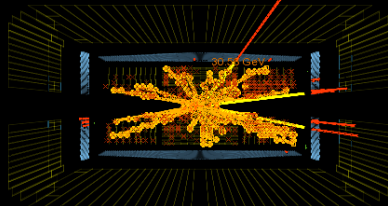


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