

Status of Strip Clustering

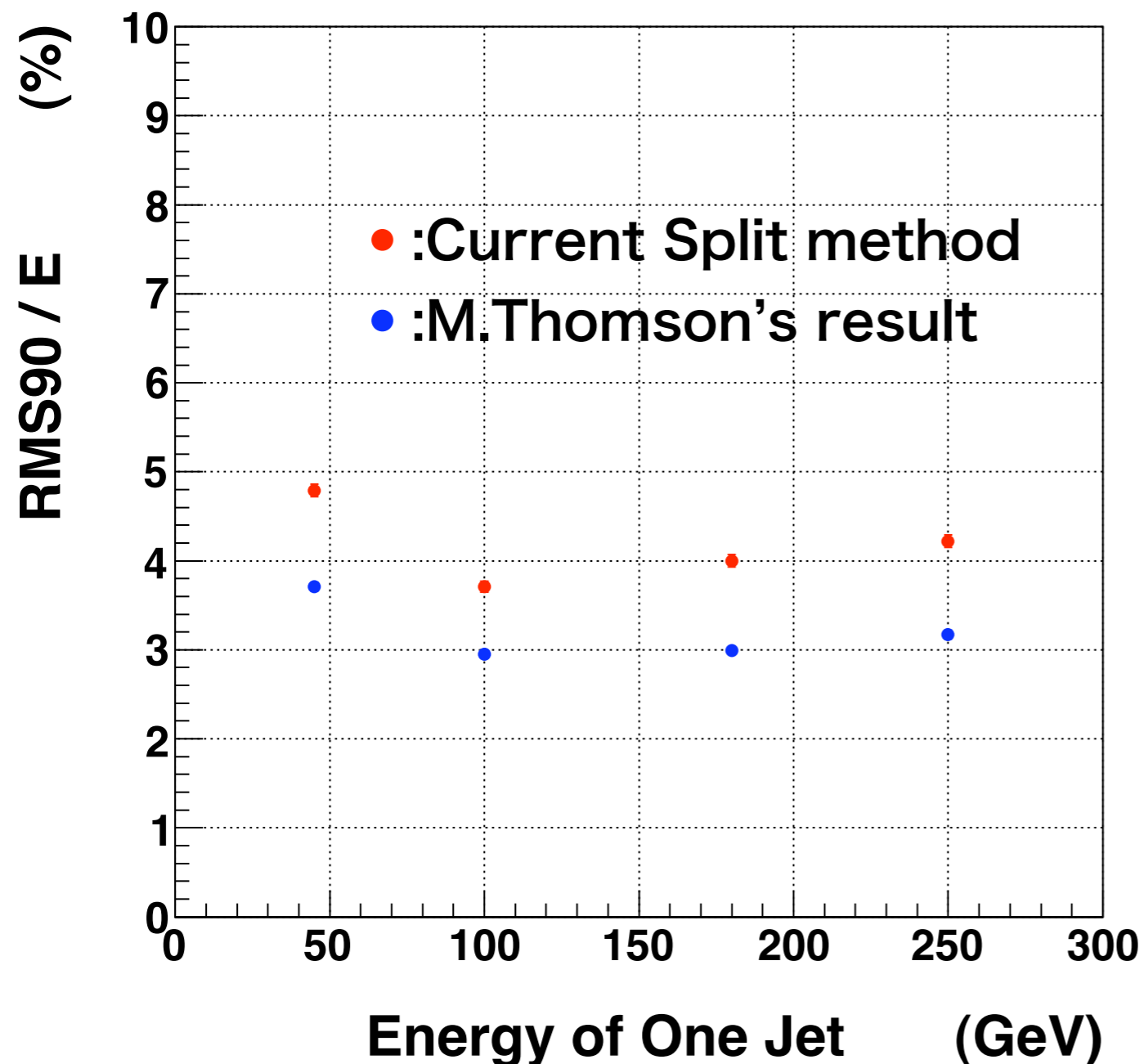
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ILD-Asia Physics-Software meeting

15th October 2010

Problem: less performance than M.Thomson's

ilcsoft v01-07



The Energy dependence of the Jet energy resolution with the split method is the similar as the M.Thomson's result.

with ilcsoft v01-09-02

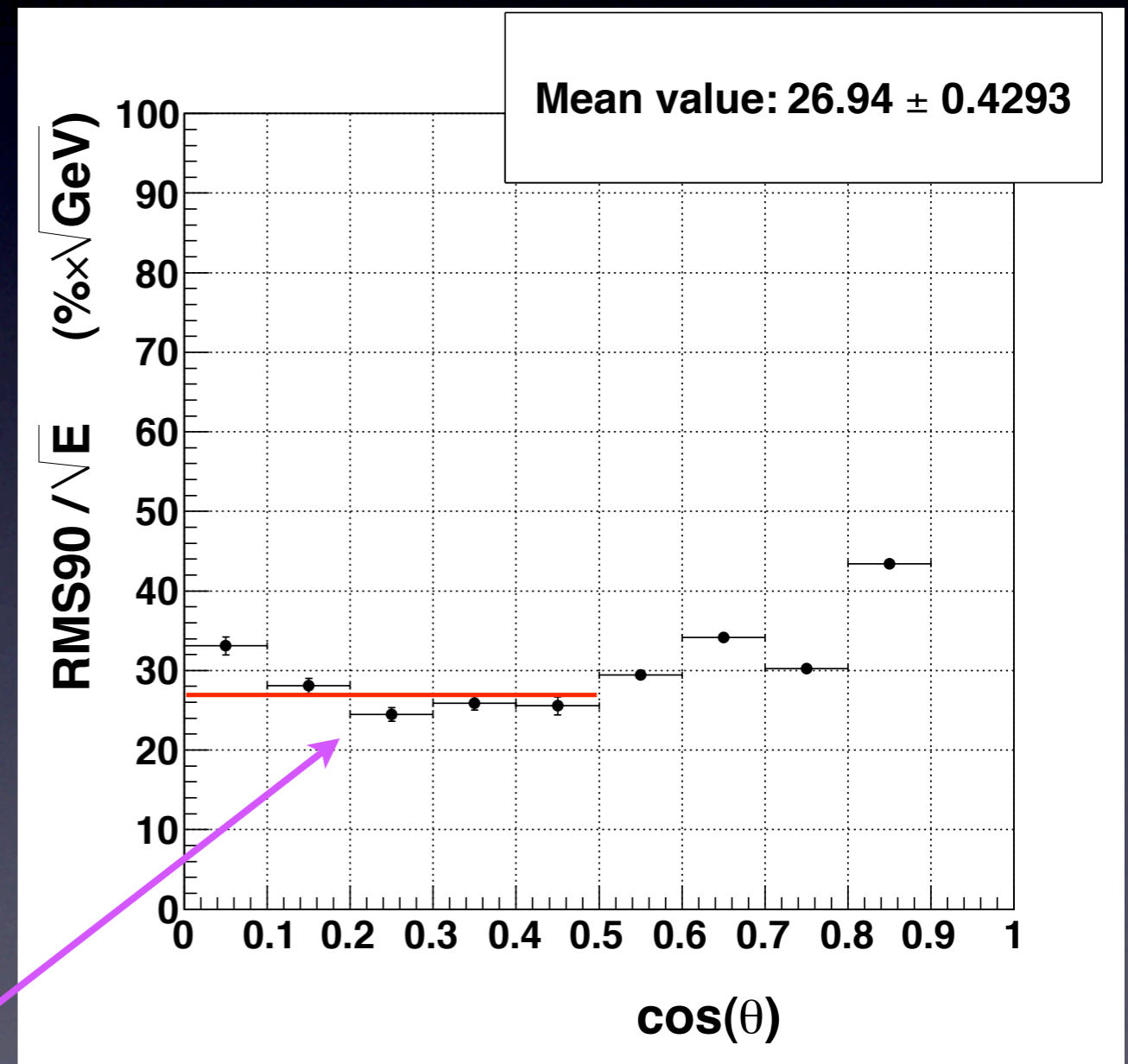
NewPandoraPFA

$\sqrt{s} = 91$ GeV, 5 mm x 5 mm cells for both

	SiECAL	ScECAL
RMS90/ \sqrt{E}	26.1% (25.7% w/ KF)	26.9%
RMS90/E	3.9% (3.8% w/ KF)	4.0%

CalibrECAL
26.27 \rightarrow 27.175
CalibrHCAL
34.8 \rightarrow 30.1
ECalToMipCalibration
160.0 \rightarrow 112.72
HCalToMipCalibration
34.8 \rightarrow 39.44

27.9%
26.9%



M field effect?

with Latest Mokka for hybrid ECAL

- More realistic simulation
 - MPPC thickness = 0.92 mm, width = 2.5 mm.
 - Reflector film thickness = 0.057 mm.
- Strip shape scintillator is available
 - ▶ not need merge procedure in Marlin
 - Minimum unit of scintillator length = 5 mm.
- we can choose both Silicon layer pair layers and Scintillator pair layers (but always common two layers (pair) must be set from Alveolus architecture.

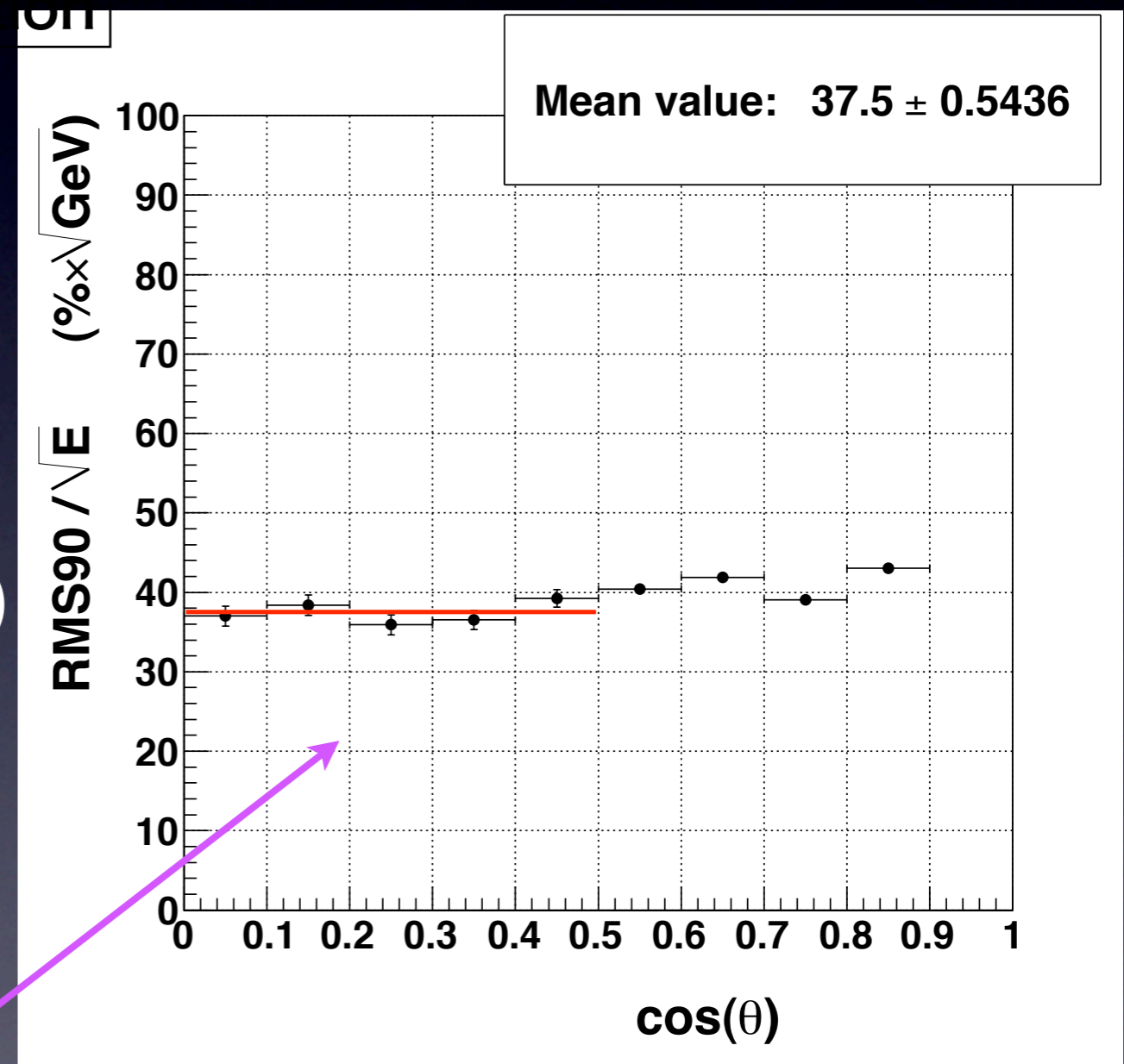
with Latest Mokka/hybrid ECAL and NewPandoraPFA in ilcsoft v01-09-02

$\sqrt{s} = 91$ GeV, 5 mm x 5 mm cells for both

	All layers SiECAL	All layers ScECAL
RMS90/ \sqrt{E}	25.84%	37.5%
RMS90/E	3.86%	5.47%

Problem

- CalibrECAL (10 GeV gamma)
27.125 \rightarrow 60.58, large diff.
- both with Silicon 2.33 g/cm³
case and with polystyrene
case, it makes similar results



No M field effect?

Status

- Study with the latest version of New PandoraPFA has been started (ilcsoft v01-09-02, PandoraPFANew v00-02).
- Latest version of “directly made strip” ScECAL in Mokka (Simultaneously Hybrid ECAL) has been built.
 - Problem on Mokka ---> investigate the code and asked developer (Gabriel)
- Module, SplitStrip was installed