

FIRST LOOK ON THE ENERGY RESOLUTION IN BCAL READOUT CELLS

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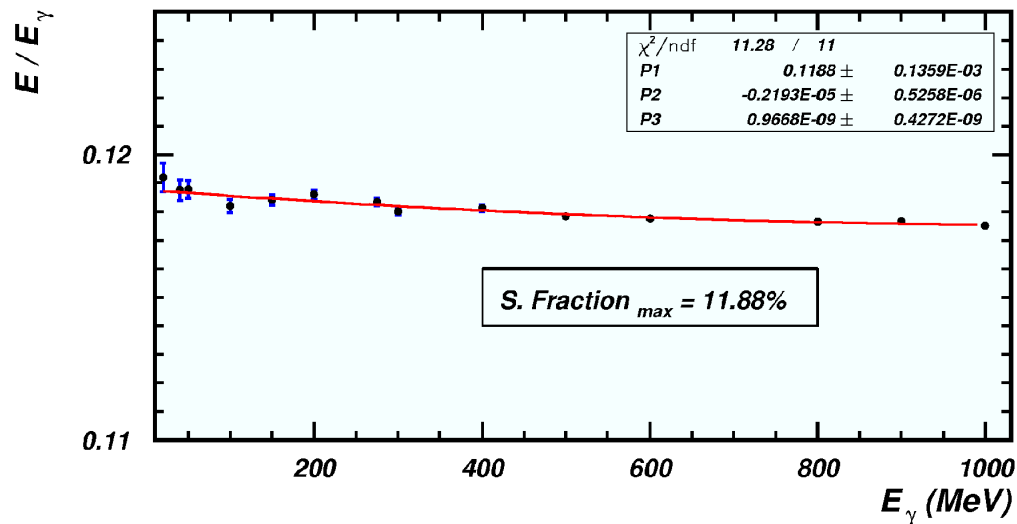
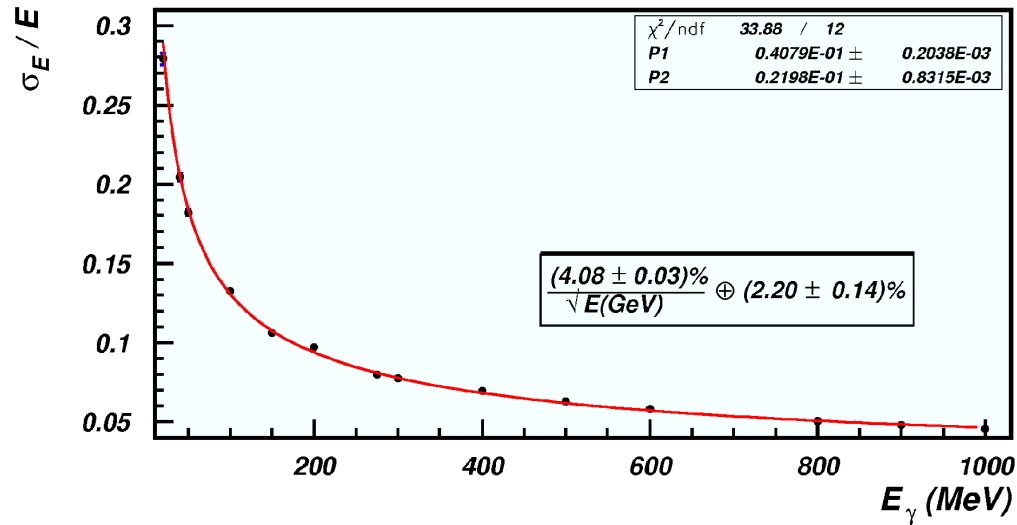
August 5, 2011

**VERY PRELIMINARY:
NOT FOR REFERENCES**

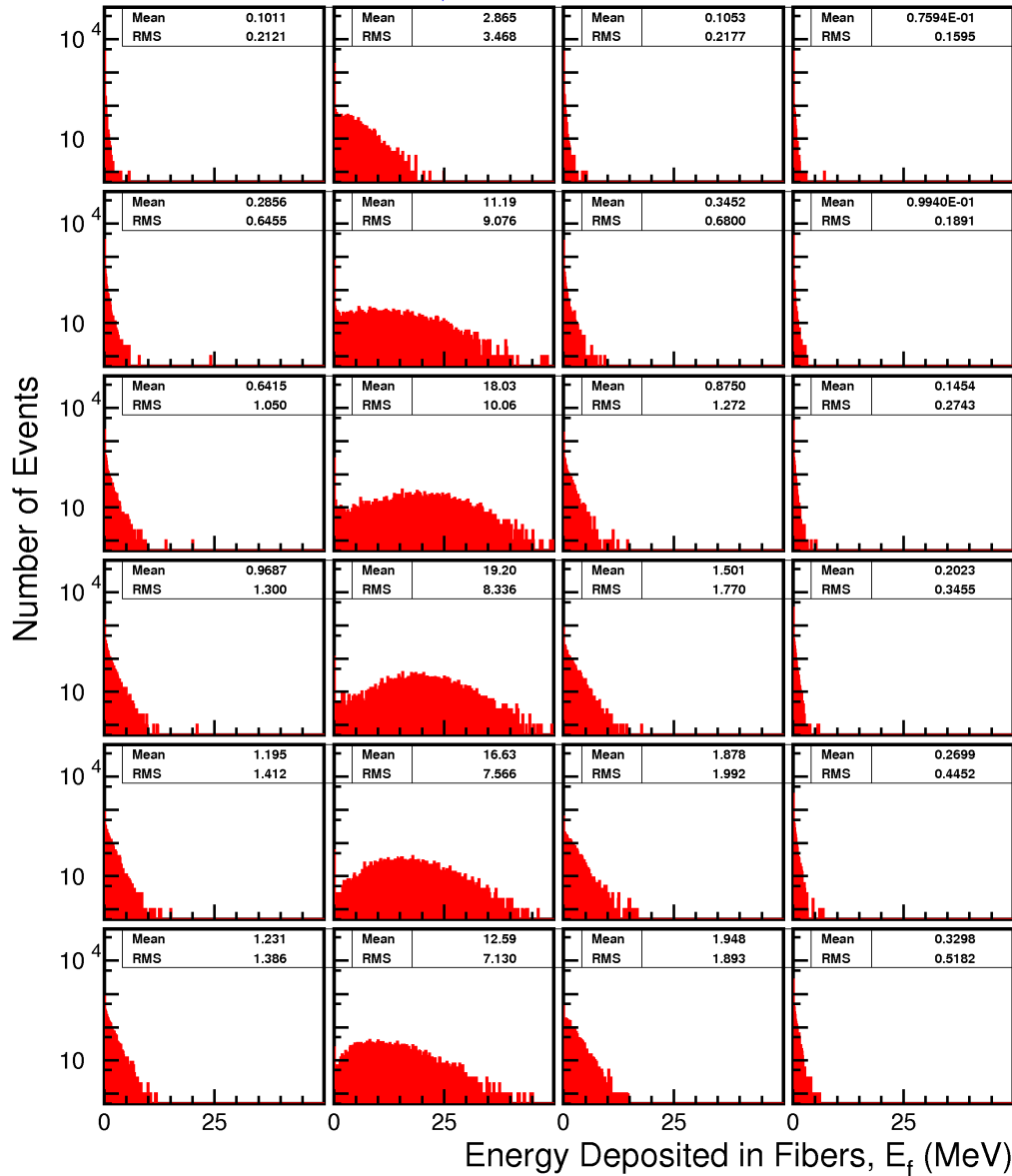
Fluka 2011.2.3

From GlueX-doc-1301: Energy in the fibers of whole module

BCal Simulation (FLUKA 2008.3); $\Theta = 90$ deg.; Module readout region

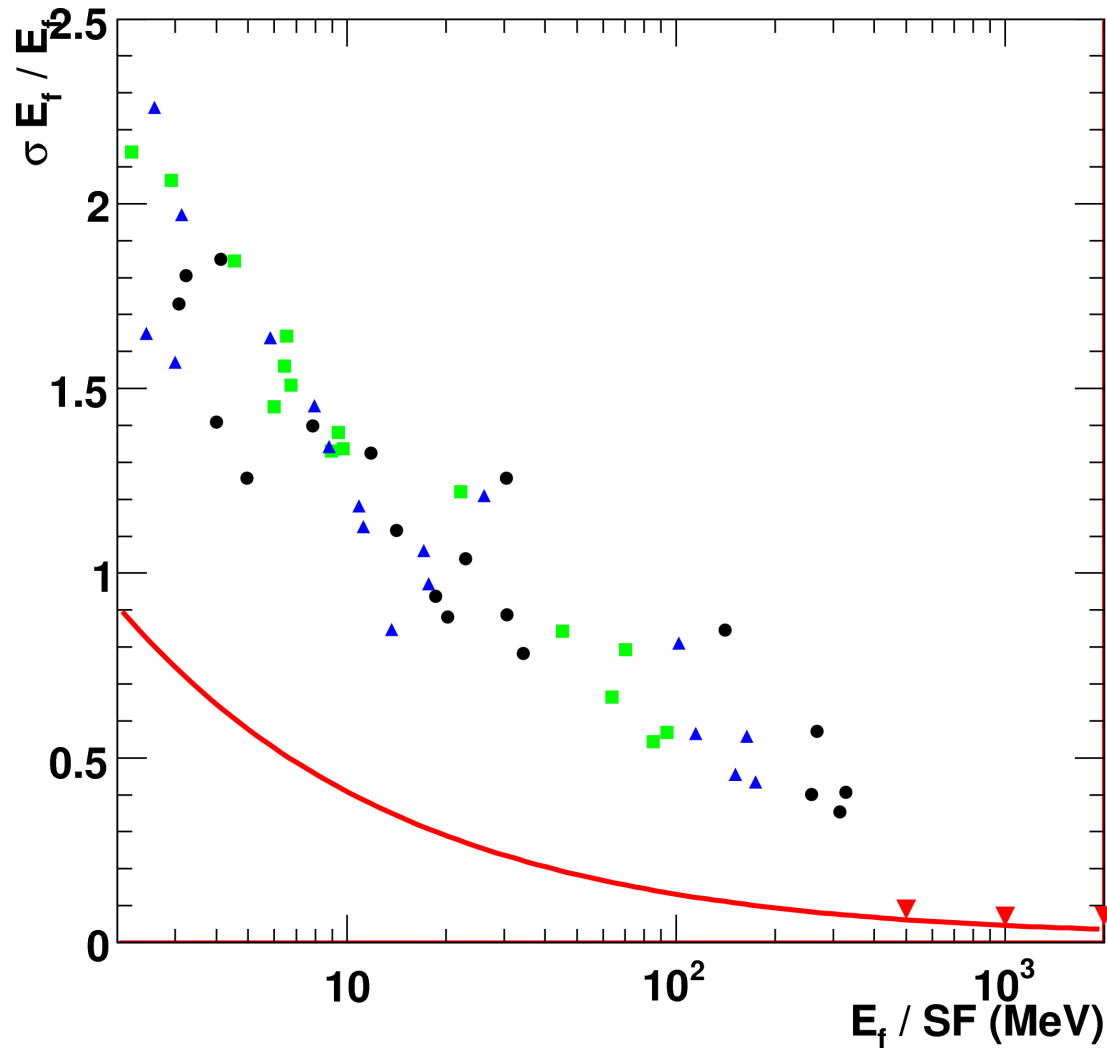


↓ $E_\gamma = 1.0$ GeV



**Energy in Cells:
Non-Gaussian shape**

Energy resolution in readout cells: fine segmentation

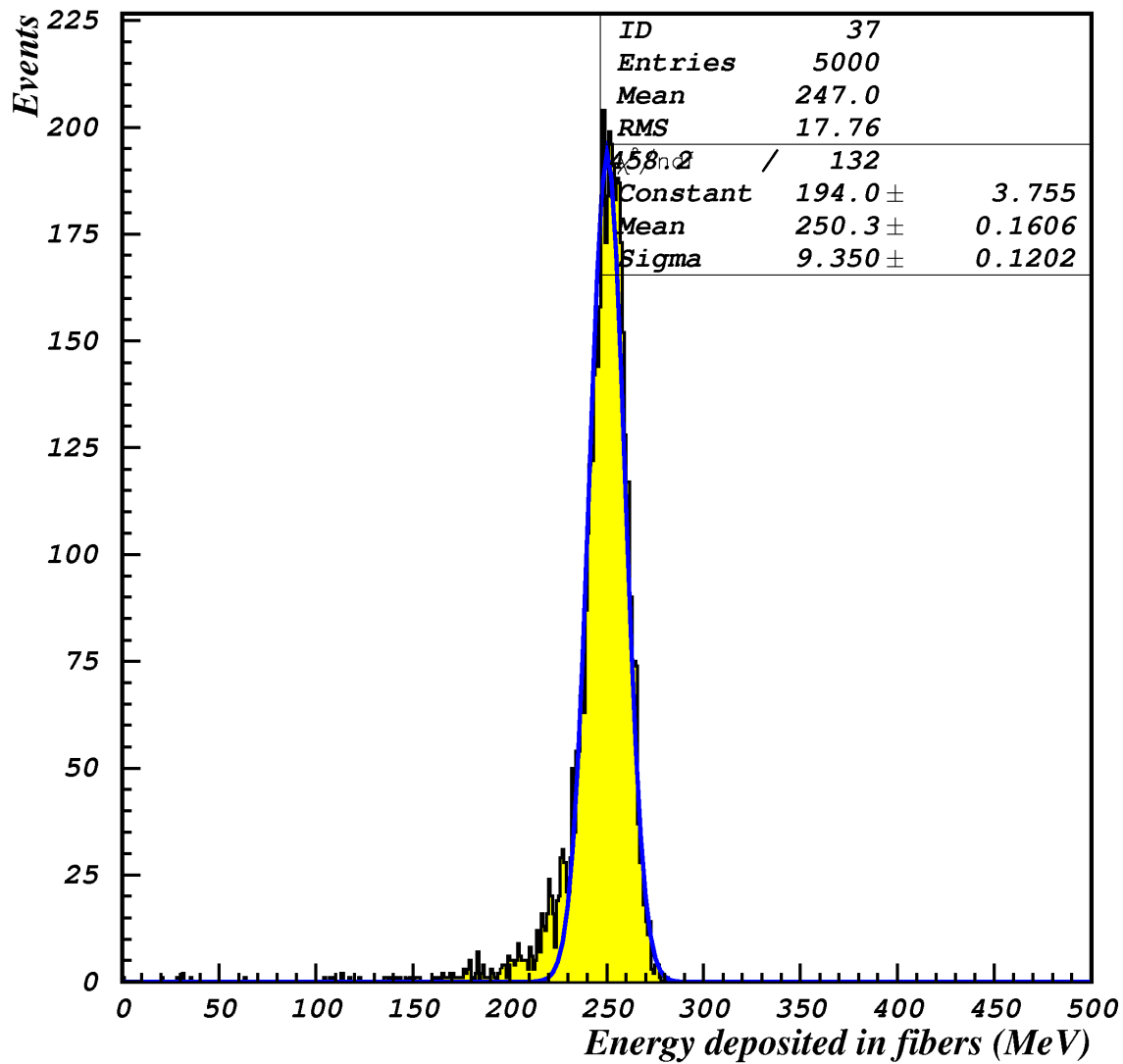


$E = 0.5, 1.0$ and 2.0 GeV
(inner part of BCAL only)

Resolution is from RMS

3 red points:
Sum over all cells in the module

FLUKA 2011.2.3; Module readout region; $E_\gamma = 2000$ MeV



Resolution from the fit
differs visibly from RMS

Very Preliminary Conclusions:

- 1. Parameterization of energy resolution in the readout cells looks different from the one for the whole module (reported previously)**
- 2. The shapes of deposited-energy spectra are non-Gaussian (Sigma-vs-RMS problem)**
- 3. Lookup table is needed**