

2014 CERN test beam – Paper status



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Structure

- The basis is the LCWS15, Whistler writeup : C15-11-02.1, **arXiv:1604.00276 [physics.ins-det]**
- **Received from Marek a section on S/N**
- **Itamar and Sasha finished working on the Moliere part**
- **Plan is to send to FCAL a first draft beginning of next week**
- **Full draft sent on Monday – July 25. Included many comments from Marek.**

Authors update

- 2 Measurement of shower development and its**
 - 3 Molière radius with a four-plane LumiCal prototype**
-

The FCAL collaboration July 27, 2016

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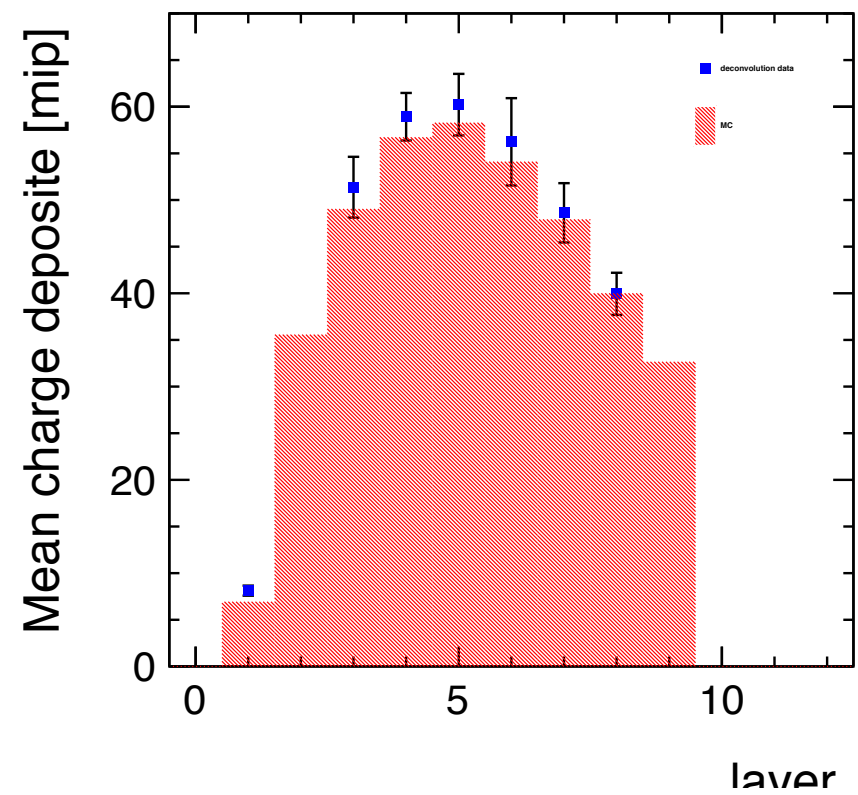
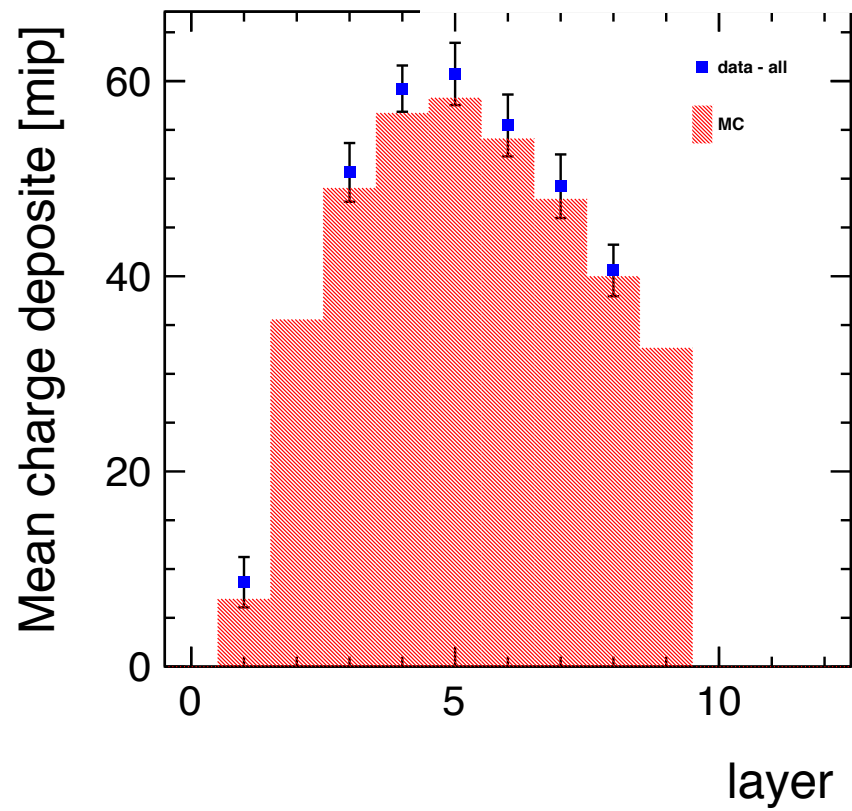
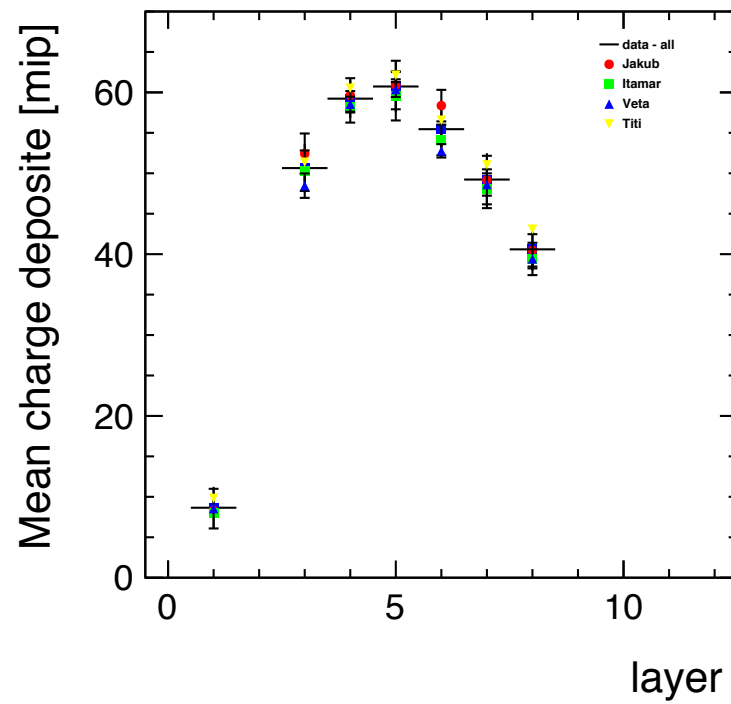
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The reconstructed position of the hit in the radial direction is compared with the extrapolated track position provided by the telescope. The distribution of the residuals, together with the Gaussian fit, are shown in Fig. 23. Based on this plot, the uncertainty of the position reconstruction in

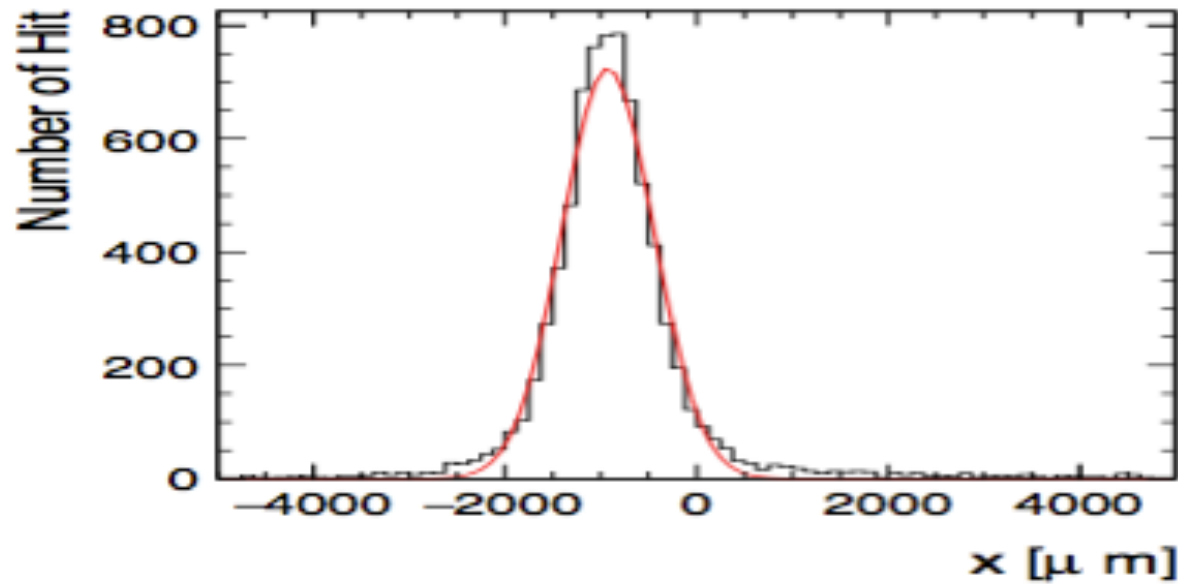


Figure 23: The distribution of the residuals between the reconstructed and the true position of the showering particle. The curve is a Gaussian fit to the distribution.

the calorimeter prototype can be estimated as $450 \mu\text{m}$.

fit model	bin center		integral		procedure difference
data set	$R_{\mathcal{M}}$ [mm]	χ^2/NDF	$R_{\mathcal{M}}$ [mm]	χ^2/NDF	
CONF1 - data	13.03	14 / 16	10.58	15.8 / 16	2.45
CONF1 - MC	14.82	50 / 16	16.67	50.1 / 16	1.85
CONF2 - data	14.06	9.4 / 16	15.13	9.5 / 16	1.07
CONF2 - MC	16.40	64.4 / 18	18.27	61.0 / 16	1.87
CONF3 - data	13.42	6.4 / 16	14.79	6.3 / 16	1.37
CONF3 - MC	17.12	55 / 16	18.59	55.9 / 16	1.47

Table 4: The *Molière* radius results for each configuration, data and MC simulation for different variations of fitting procedure.