Electron Reconstruction Study Weekly Updates

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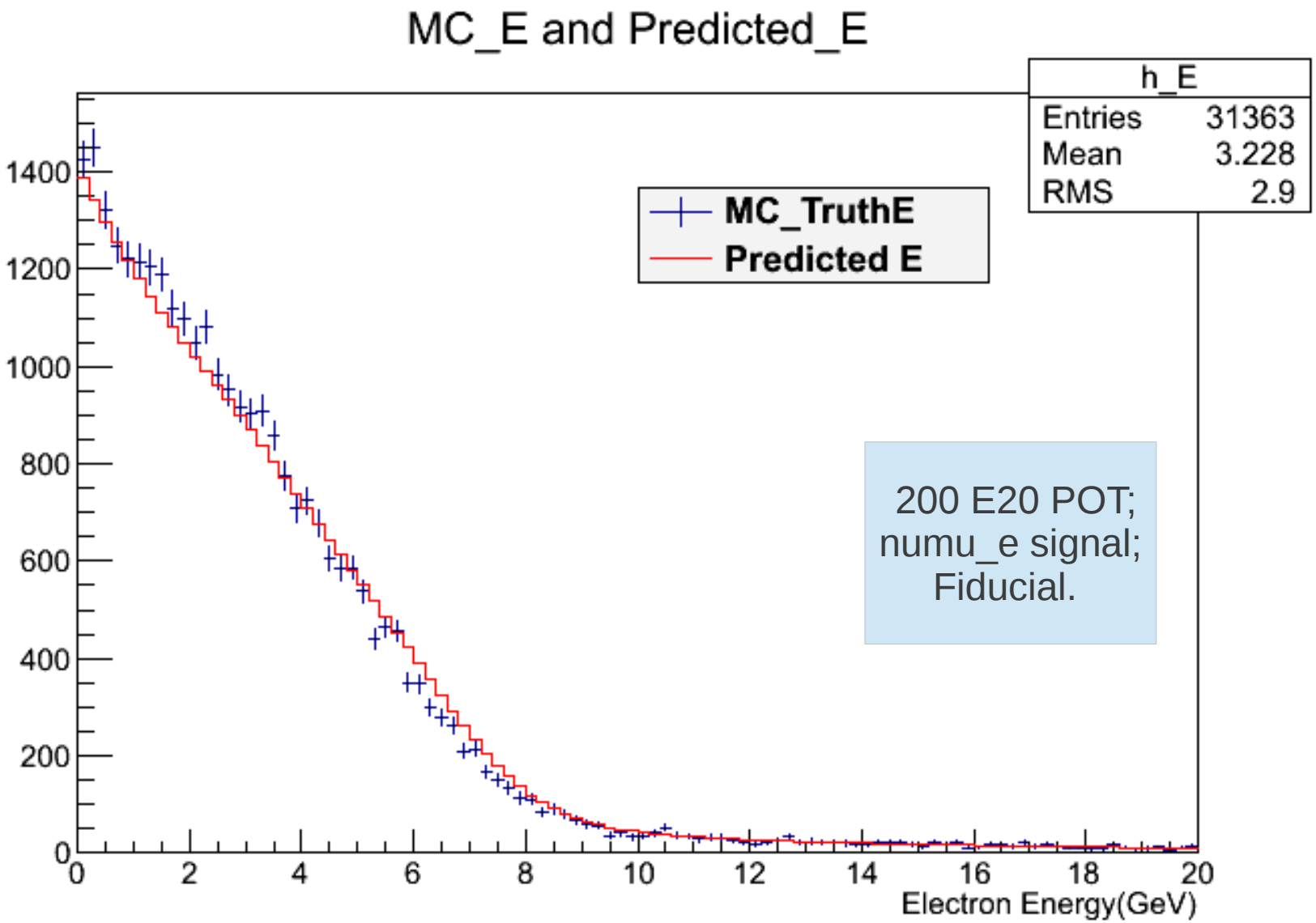
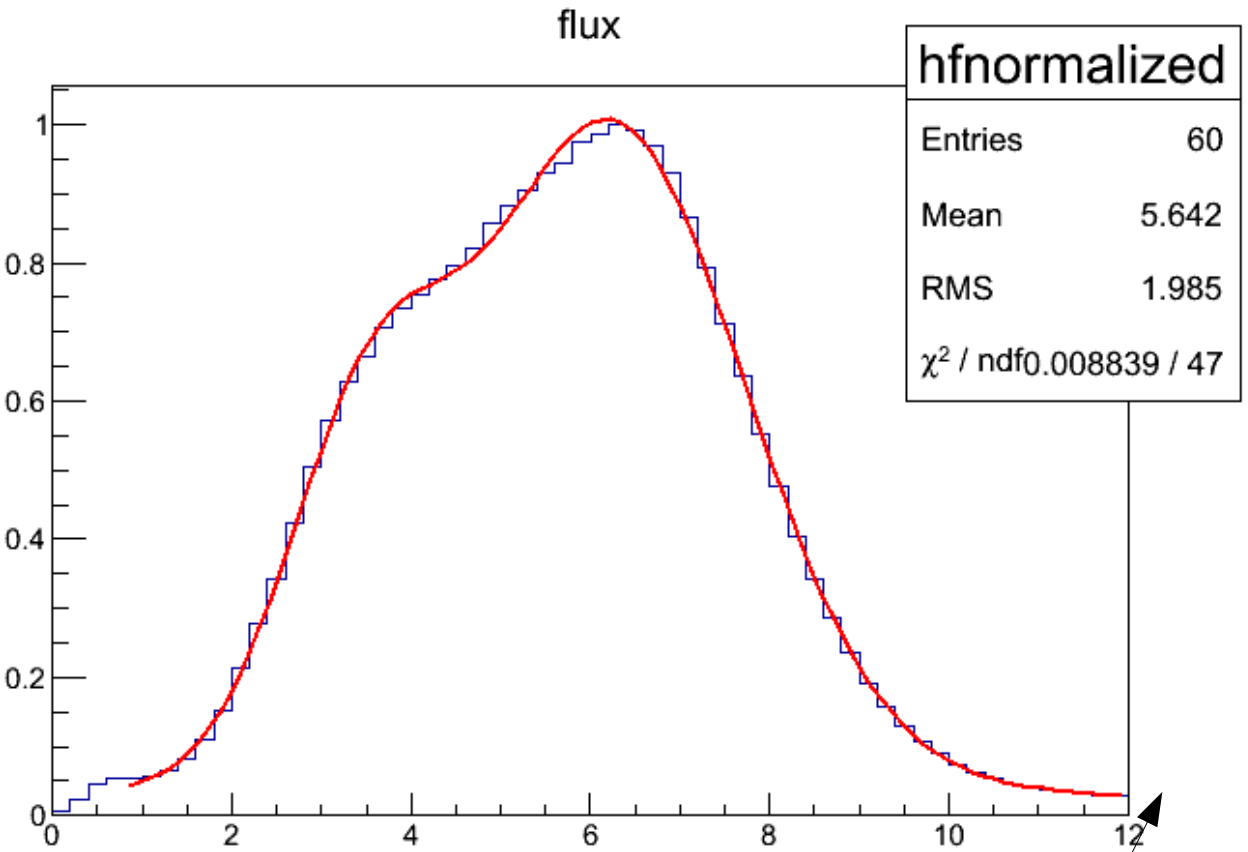
17rd Oct 2012

Prediction on ME nu_e Sample

Zoomed in at 0-20 GeV



Fit The Flux With Three Gaussian Function

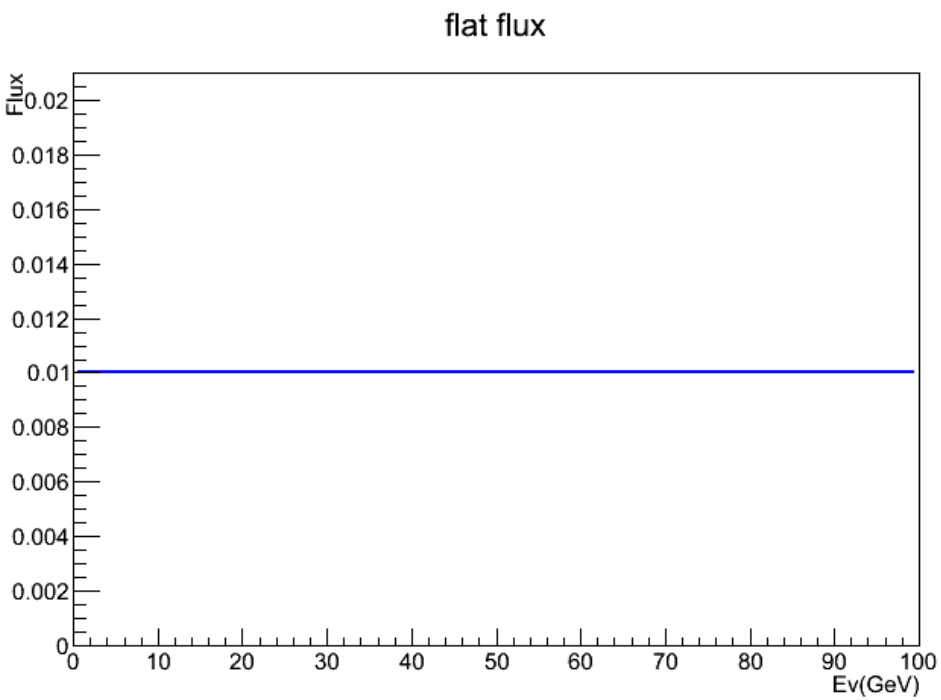


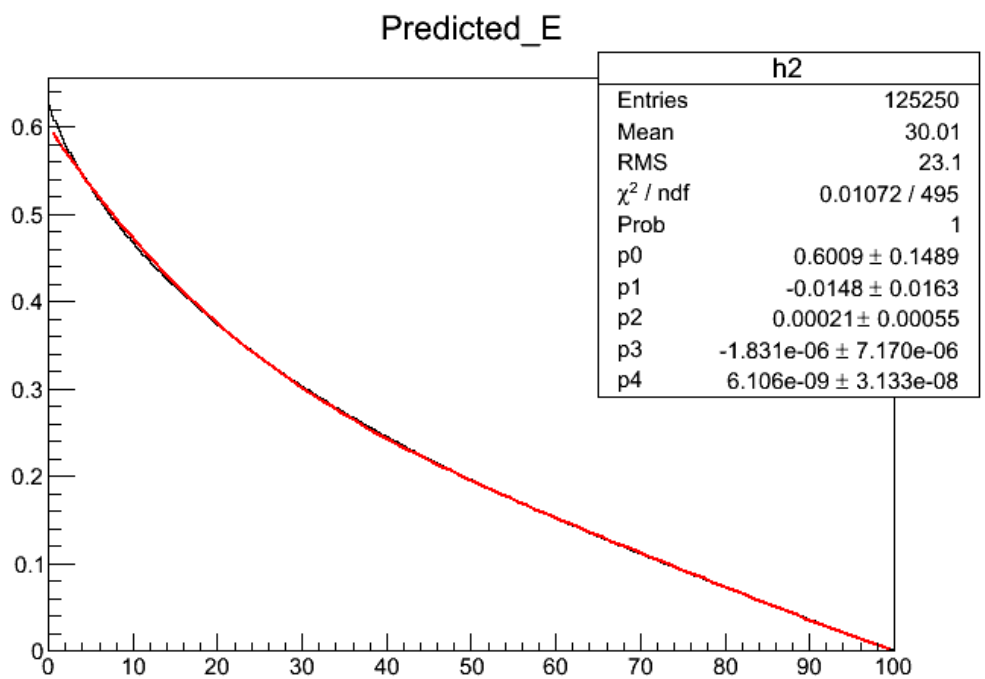
Ignore Long Tail(less than 5% effect)

Fit Range: 0.8-12 GeV
9 Parameters:

Name	Value
p0	9.42149e-01
p1	6.23012e+00
p2	1.48794e+00
p3	4.52944e-01
p4	3.50250e+00
p5	9.22803e-01
p6	6.00232e-02
p7	5.85287e+00
p8	4.84567e+00

Flat Flux Fitting Practice





Fitted electron spectrum function:

Linear

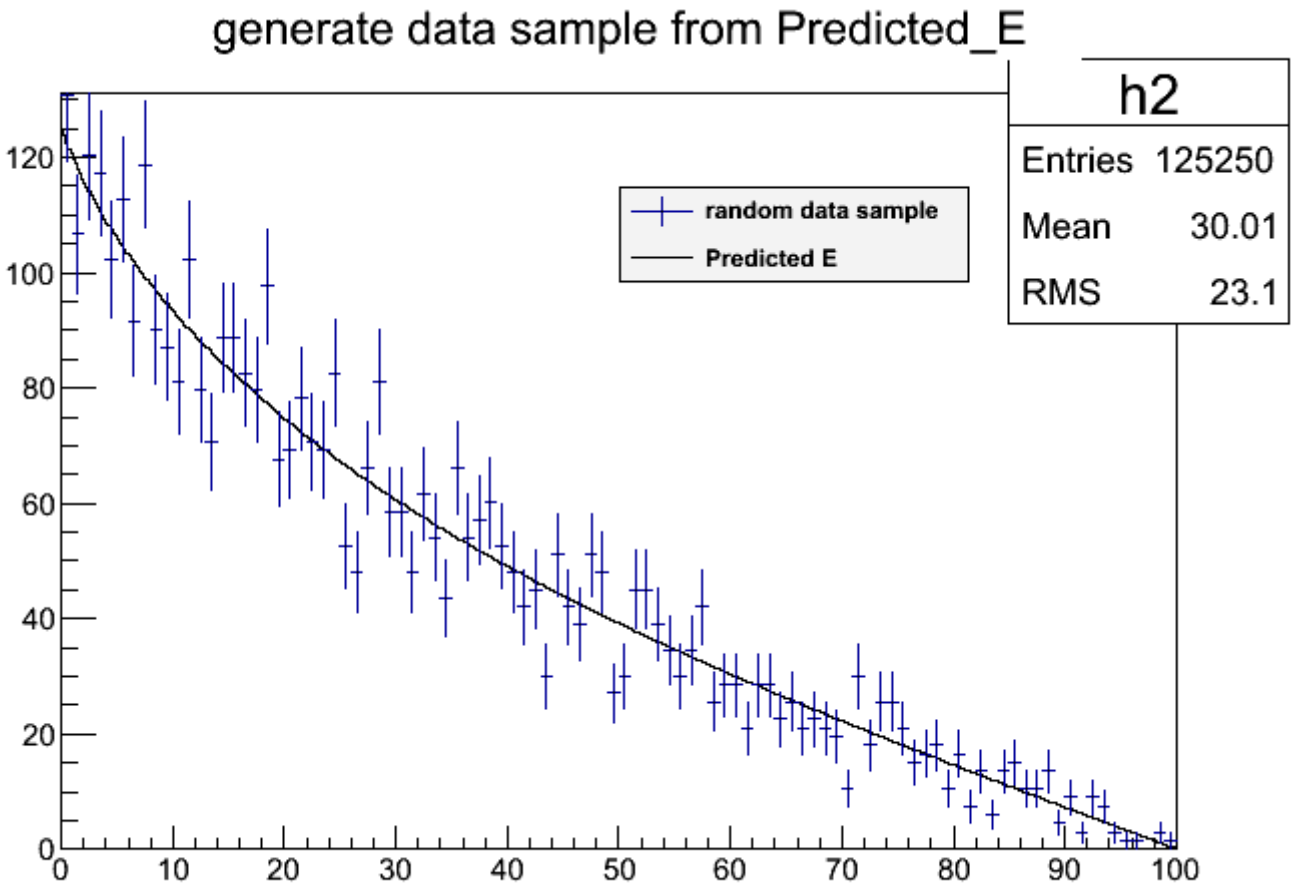
$$N(T) = 0.6009 - 0.0148\mathrm{T} + 0.00021\mathrm{T}^2 - 0.000001831\,T^3 + 0.000000006106\,T^4$$

$$= 0.01\left(\boxed{60.09 - 1.48\mathrm{T} + 0.021\mathrm{T}^2 - 0.0001831\,T^3 + 0.0000006106\,T^4}\right)$$

Math for the Prediction.

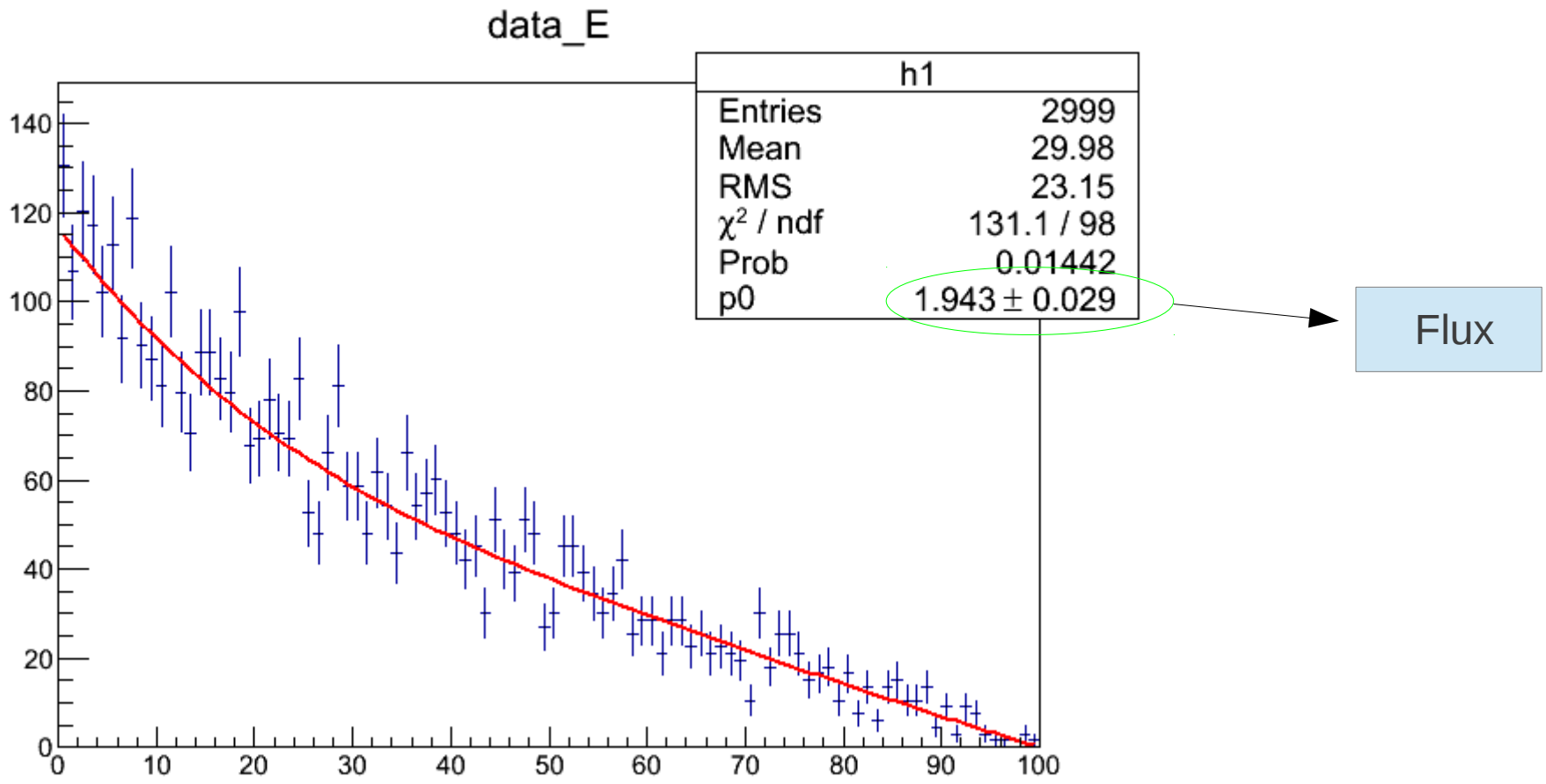
(Talk on the paper)

Backward: from data to flux



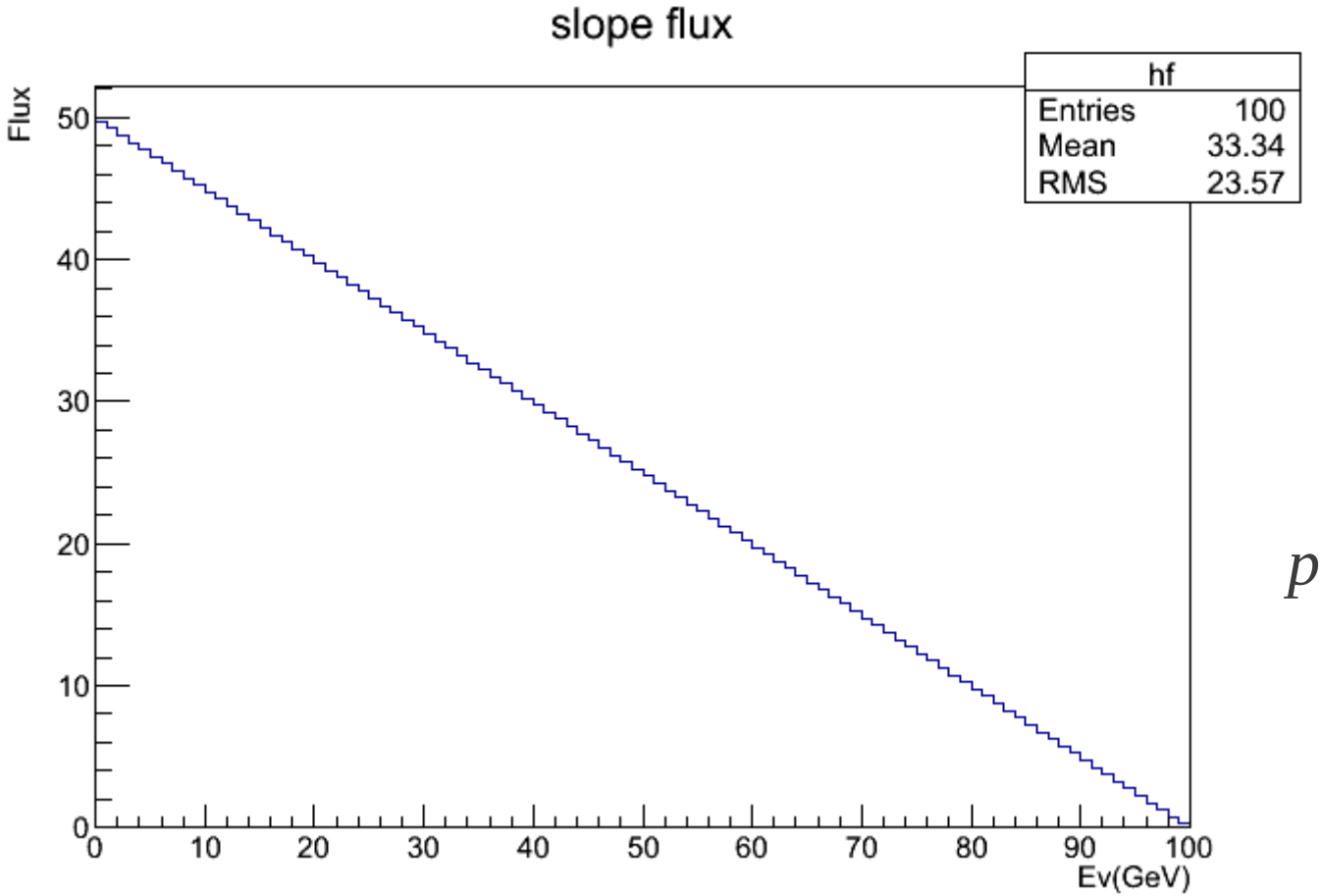
Flux = 2

Fitting the data



$$N(T)=p[0](60.09-1.48\mathrm{T}+0.021\mathrm{T}^2-0.0001831\,T^3+0.0000006106\,T^4)$$

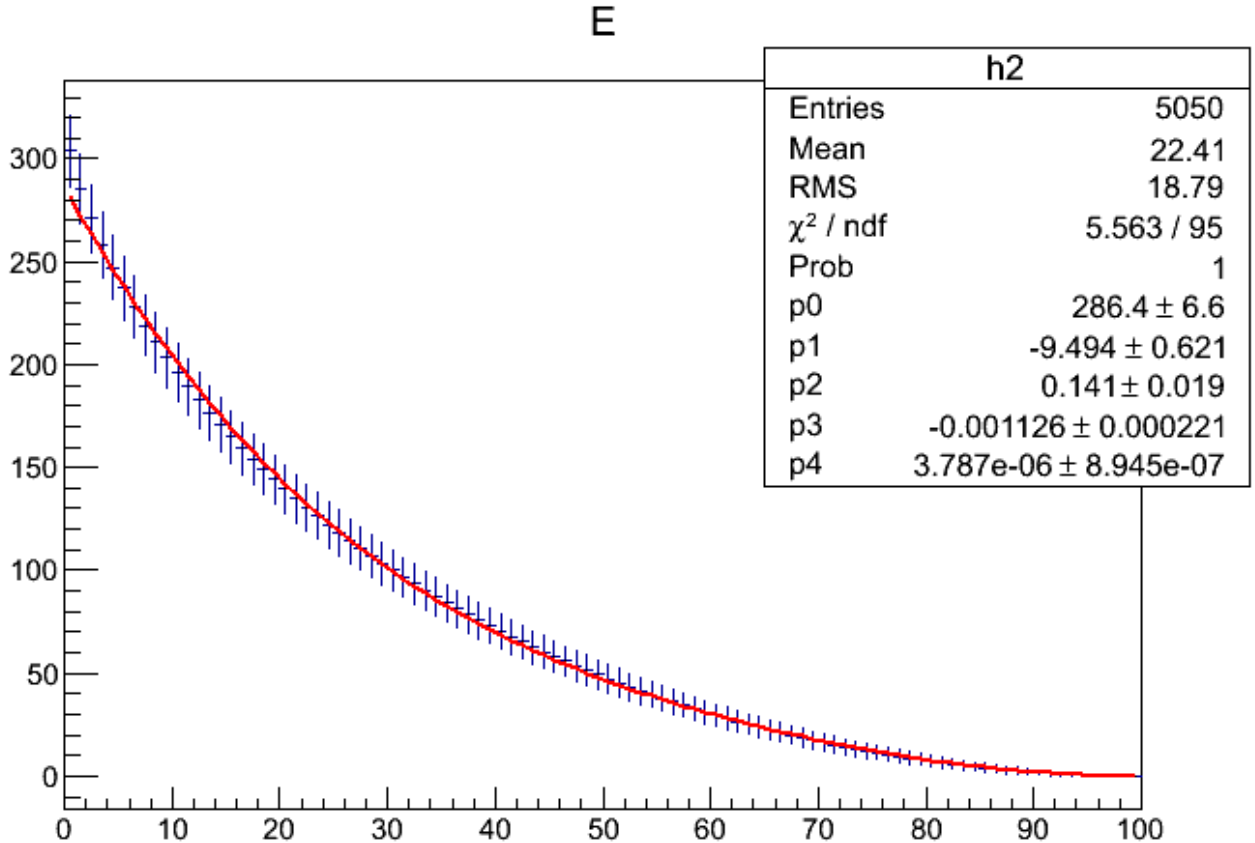
Slope flux(2 parameters)



$$p[0]+p[1]E_{\nu}$$

$$p[0]=50, p[1]=-0.5$$

Prediction Electron Spectrum and Fitting



$$N(T) = 286.4 - 9.494\mathrm{T} + 0.141\mathrm{T}^2 - 0.001126\,T^3 + 0.000003787\,T^4$$