Constraining The ME Flux
Fitting Tool Developing Weekly Updates

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TMinuit chi2 Minimization
(single Gaussian flux example)

Input Flux: Single Gaussian
A: 17.4797e16
M: 5.6
S: 1.5

→ helectE(electron energy spectrum histogram)

Generate Random Sample(using predicted true event size 3136)

data

Fit Sigma, Random Sample

(Event size: 3136)

TruthSigma (Fixed m=5.6; a=17.4797 e16)	1.1	1.2	1.3	1.4	1.5
FitSigma	1.101	1.200	1.309	1.406	1.501
Error	0.474	0.487	0.509	0.529	0.553
Random Sample, Fit Sigma	1.116	1.269	1.253	1.458	1.436
Random Sample, Error	0.460	0.612	0.613	1.054	0.449

Fit Mean, Random Sample

(Event Size: 3136)

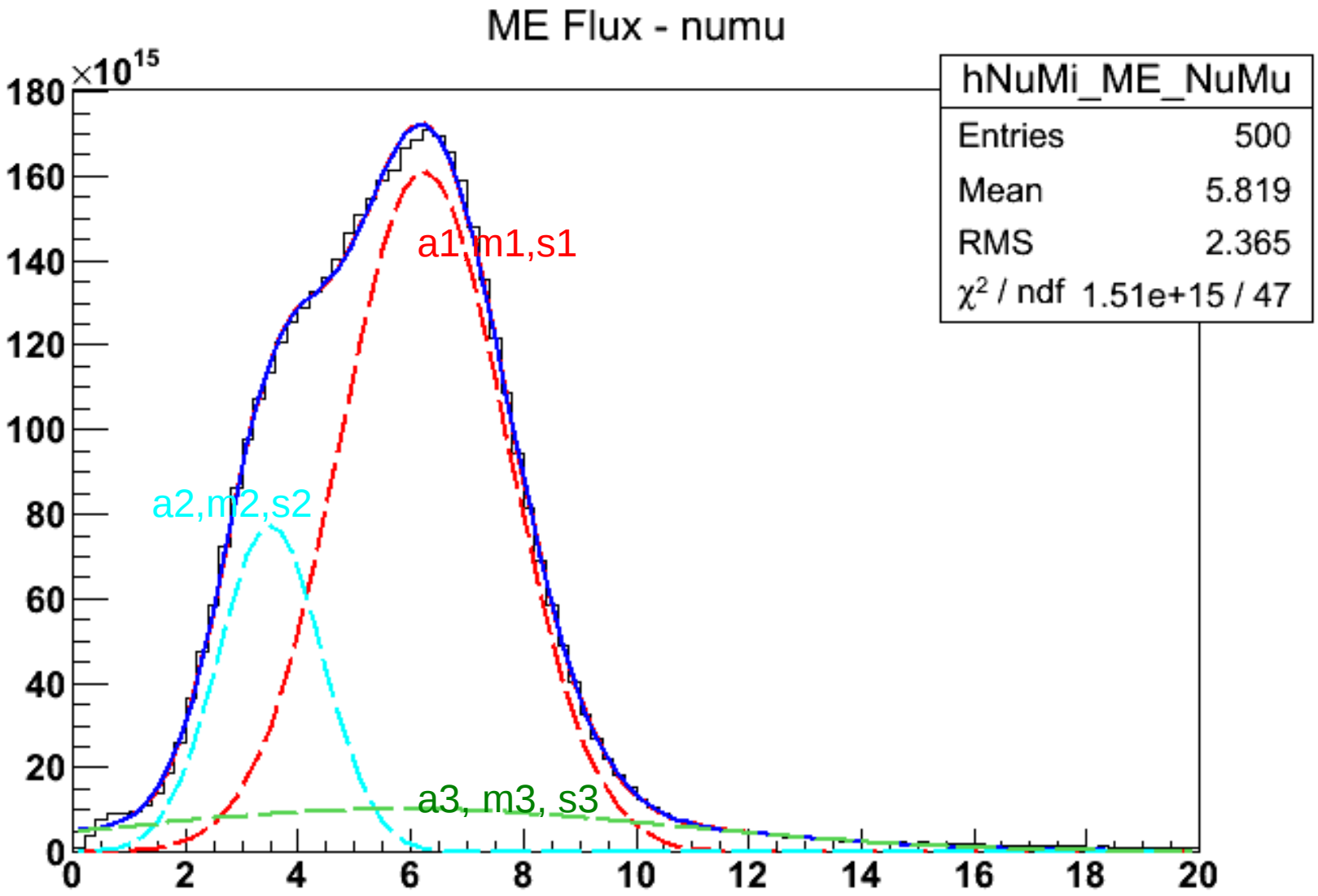
TruthMean (Fixed s=1.5; a=17.4797e16)	5.6	5.7	5.8	5.9	6.0
FitMean	5.600	5.700	5.800	5.900	6.000
Error	0.721	0.726	0.730	0.734	0.738
Random Sample, Fit Mean	5.557	5.804	5.727	5.817	5.970
Random Sample, Error	0.778	0.614	0.688	0.621	1.014

Fit 2 Parameters, Sigma and Mean

Ramdom Sample Size: 3136

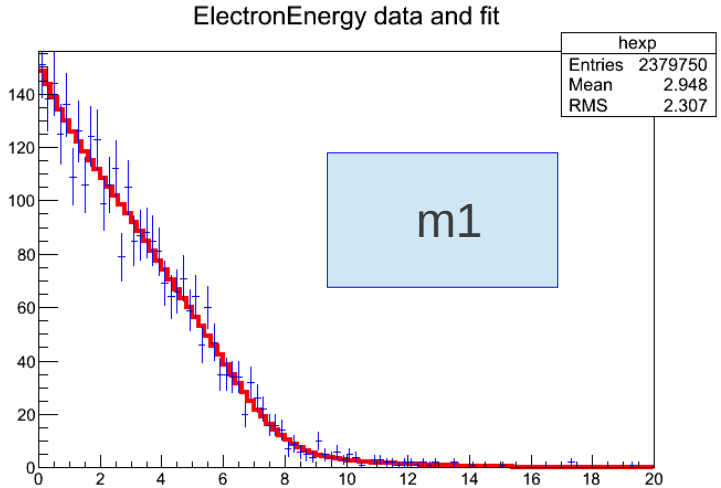
TruthSigma/Mean (Fixed a=17.4797e16)	1.1/5.6	1.2/5.6	1.3/5.6	1.4/5.6
FitSigma/Mean	1.100/5.601	1.200/5.600	1.300/5.603	1.402/5.600
ErrorSigma/ErrorMean	0.649/0.807	0.685/ 0.862	0.714/0.907	0.760/0.982
Fit Sigma/Mean Random Sample	1.140/5.558	1.205/5.702	1.296/5.523	1.573/5.408
ErrorSigma/ErrorMean Random Sample	0.367/0.375	8.243/13.271	0.576/0.584	0.468/0.563

3 Gaussian Flux, 9 Parameters, Tminuit Fitting

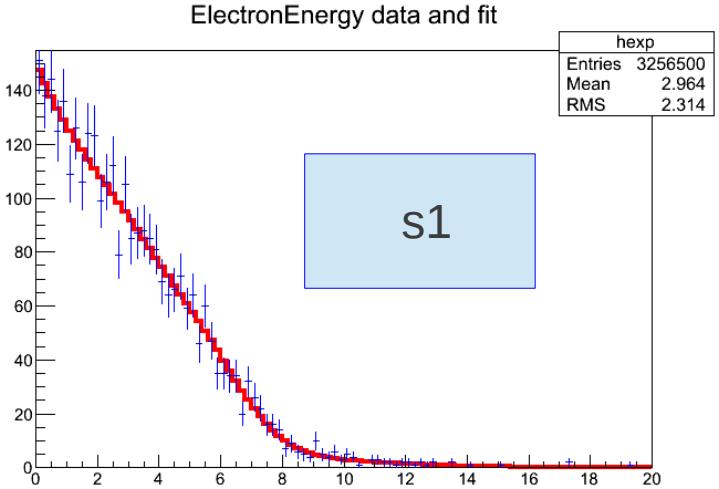


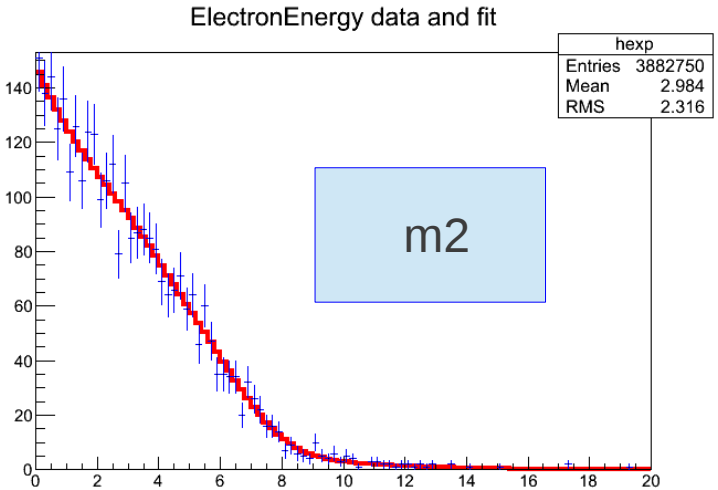
TMinuit Fitting Parameters
Ramdom Sample Size: 3136

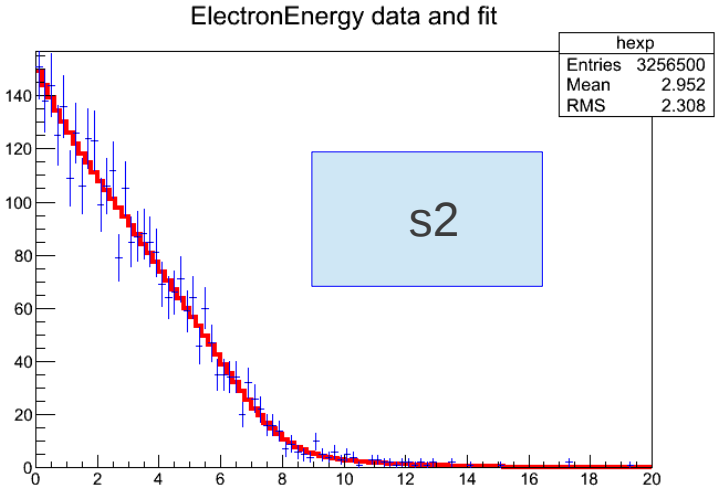
Name	Value	TMinuit Fitting	Fitting Error
a1	1.61001e+17	--	--
m1	6.22941	6.119	0.945
s1	1.48879	1.356	1.361
a2	7.73112e+16	--	--
m2	3.50168e	3.696	5.829
s2	0.922362	1.154	3.167
a3	1.02081e+16	--	--
m3	5.84647	6.031	3.822
s3	4.86736	5.079	3.413

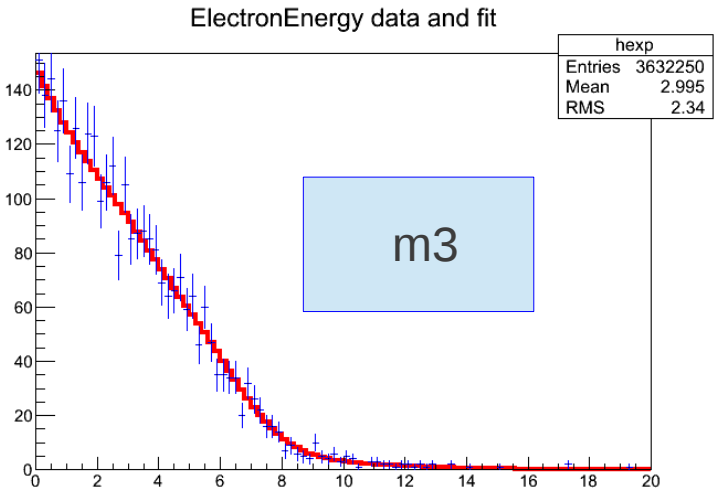

ElectronEnergy data and fit
hexp
Entries 2379750
Mean 2.948
RMS 2.307
m1

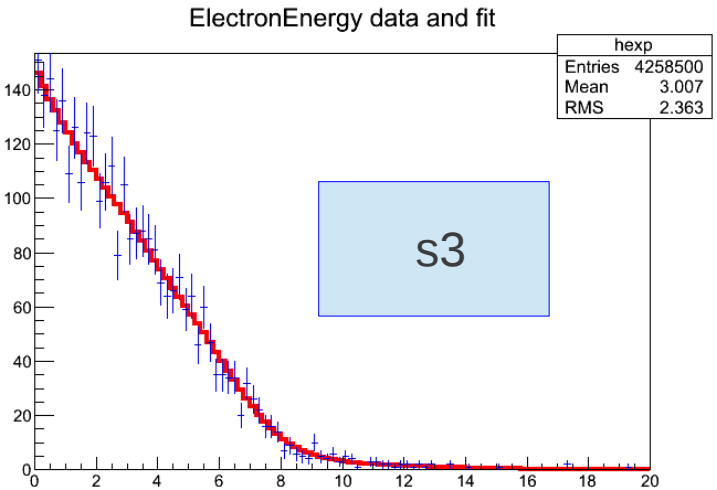
data


ElectronEnergy data and fit
hexp
Entries 3256500
Mean 2.964
RMS 2.314
s1


ElectronEnergy data and fit
hexp
Entries 3882750
Mean 2.984
RMS 2.316
m2


ElectronEnergy data and fit
hexp
Entries 3256500
Mean 2.952
RMS 2.308
s2


ElectronEnergy data and fit
hexp
Entries 3632250
Mean 2.995
RMS 2.34
m3


ElectronEnergy data and fit
hexp
Entries 4258500
Mean 3.007
RMS 2.363
s3