

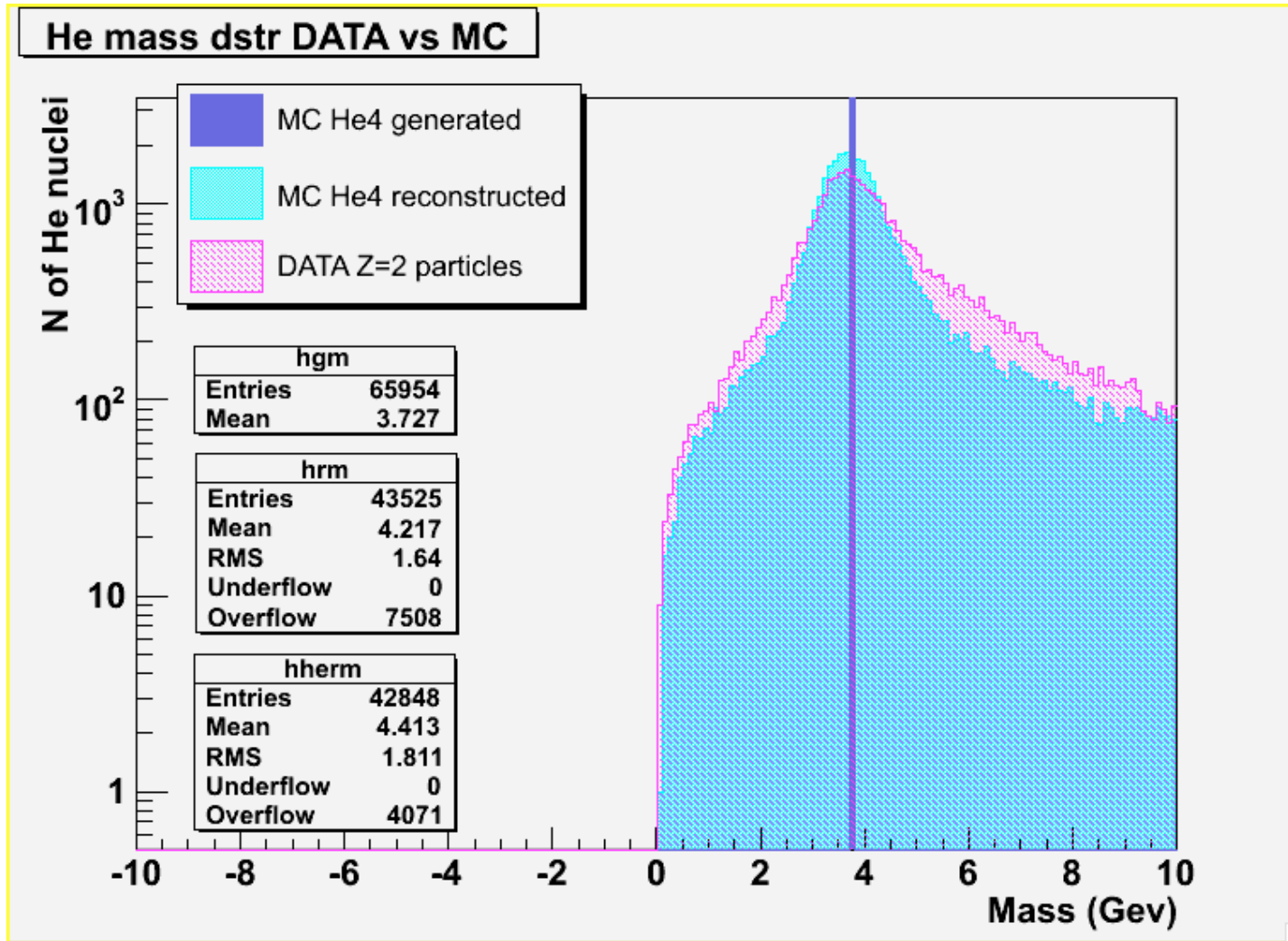
Search for time-dependent fluctuations in cosmic rays spectra with the AMS01 detector

MC vs DATA

July 5-12, 2006

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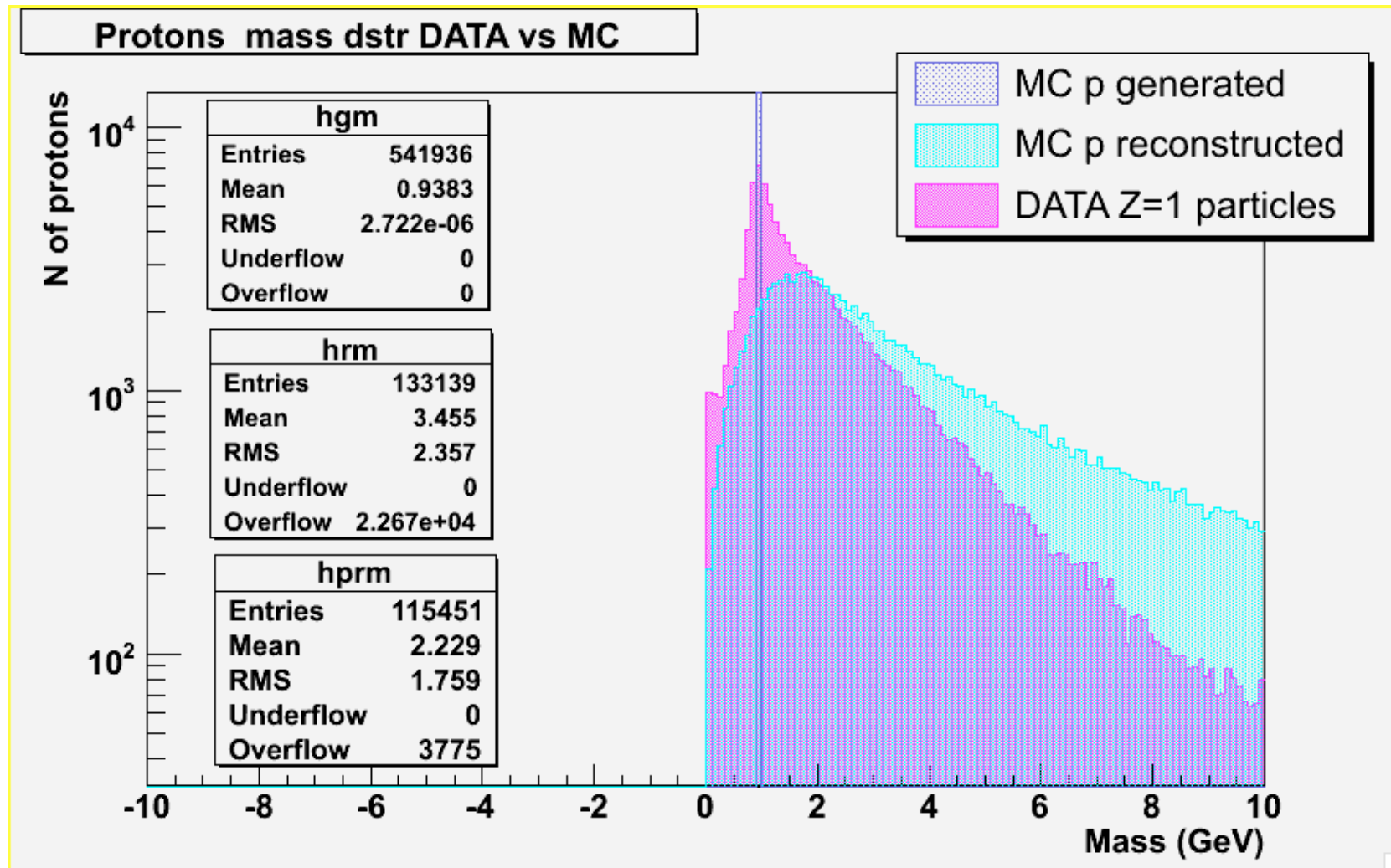
Mass distribution: He



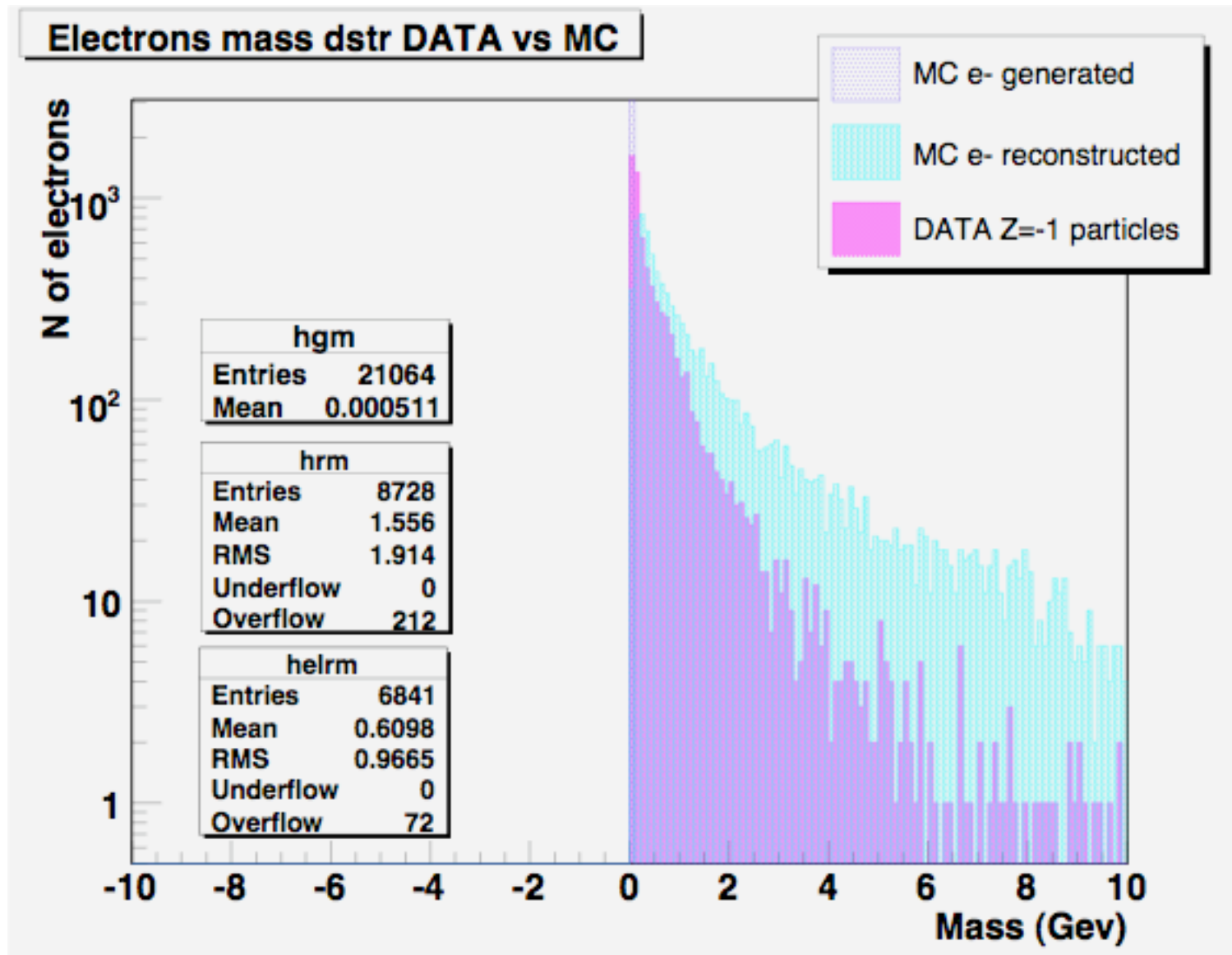
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Mass distribution: p



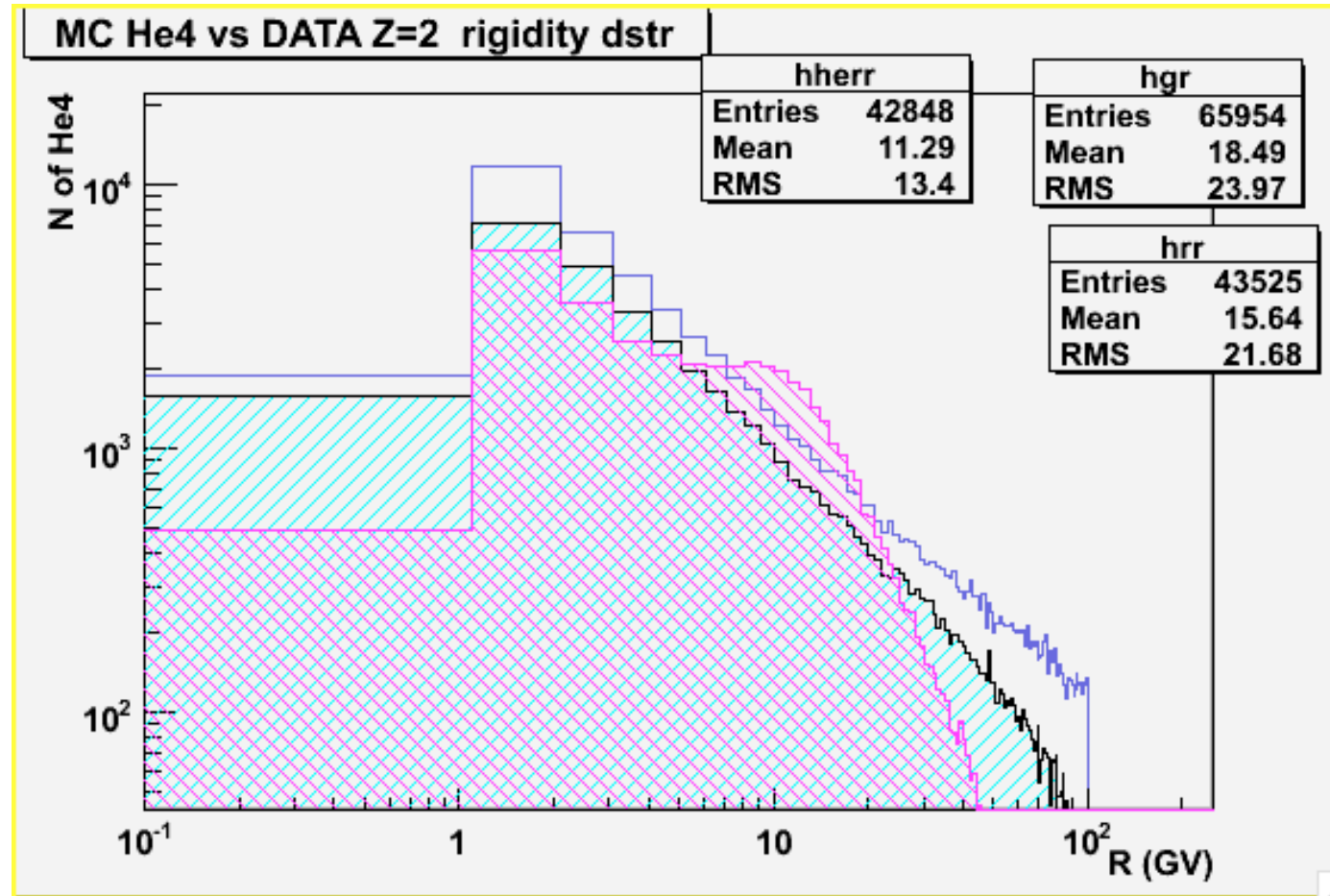
Mass distribution: e-



Comment on mass distributions:

- MC reconstructed mass distributions for electrons and protons are wider than corresponding DATA distributions!!!!
 - Let's look at rigidity distributions

Rigidity distribution: He

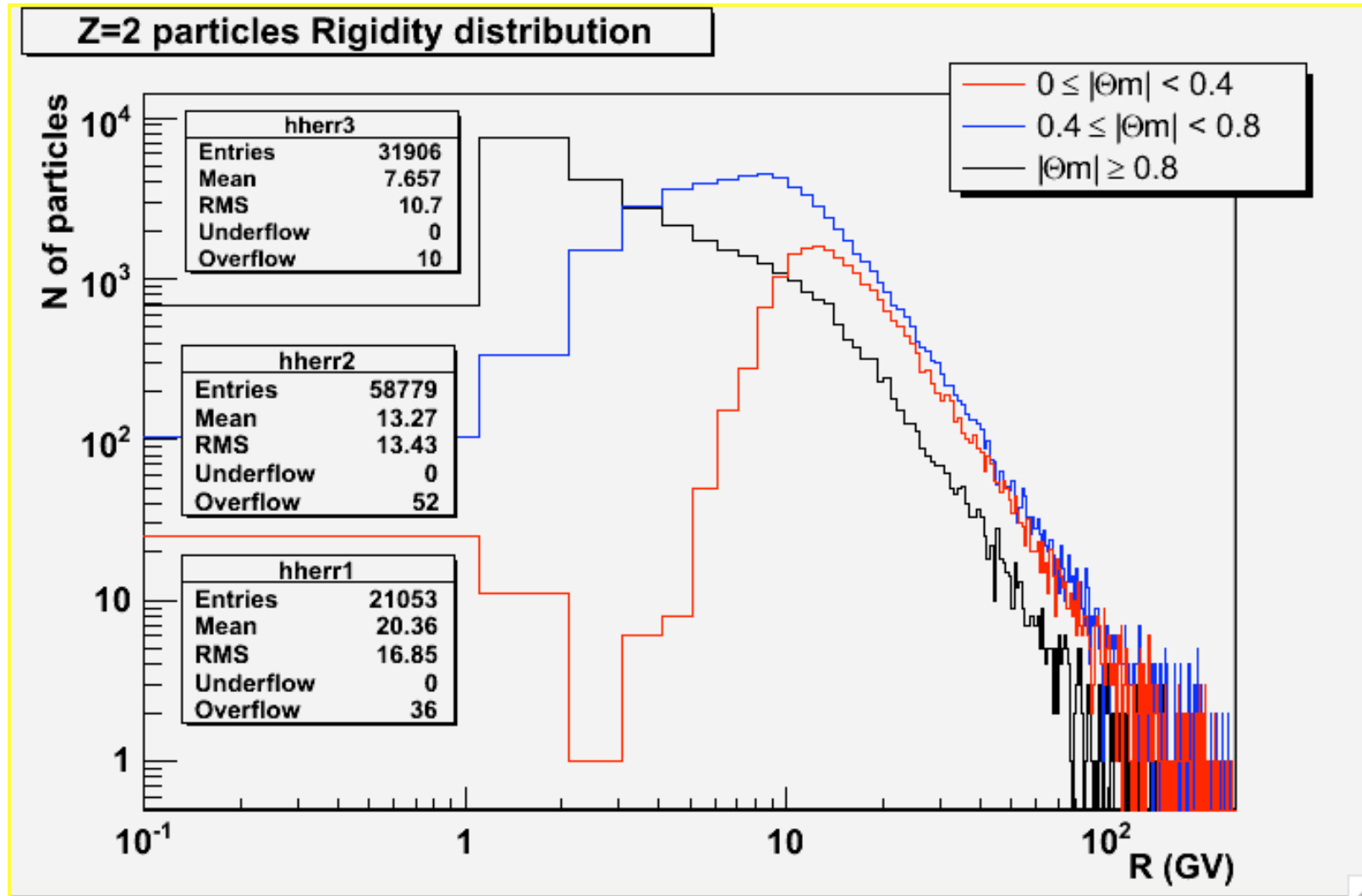


Data rigidity distribution contains events taken at all geomagnetic latitudes..

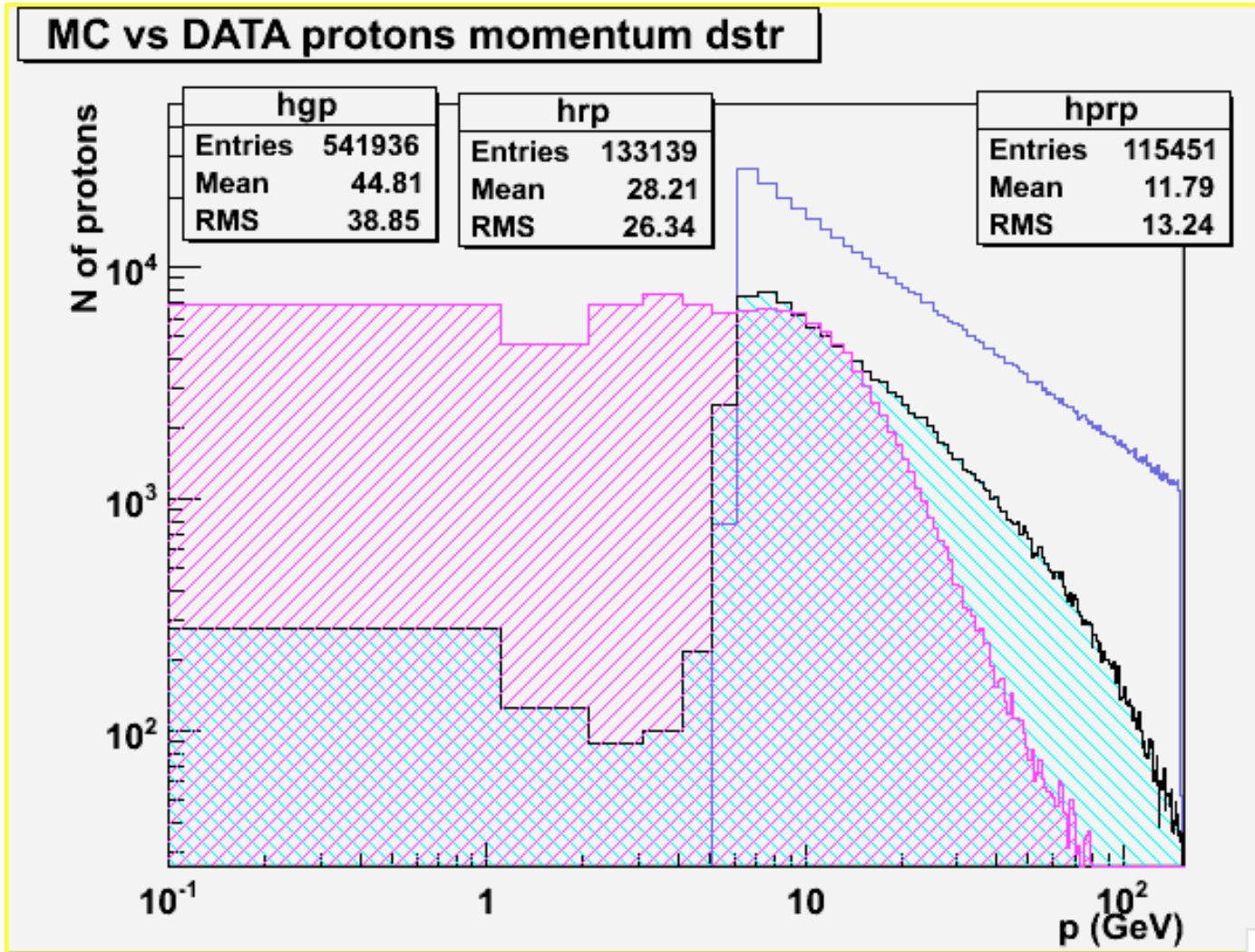
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He Rigidity distributions in different geomagnetic latitude regions



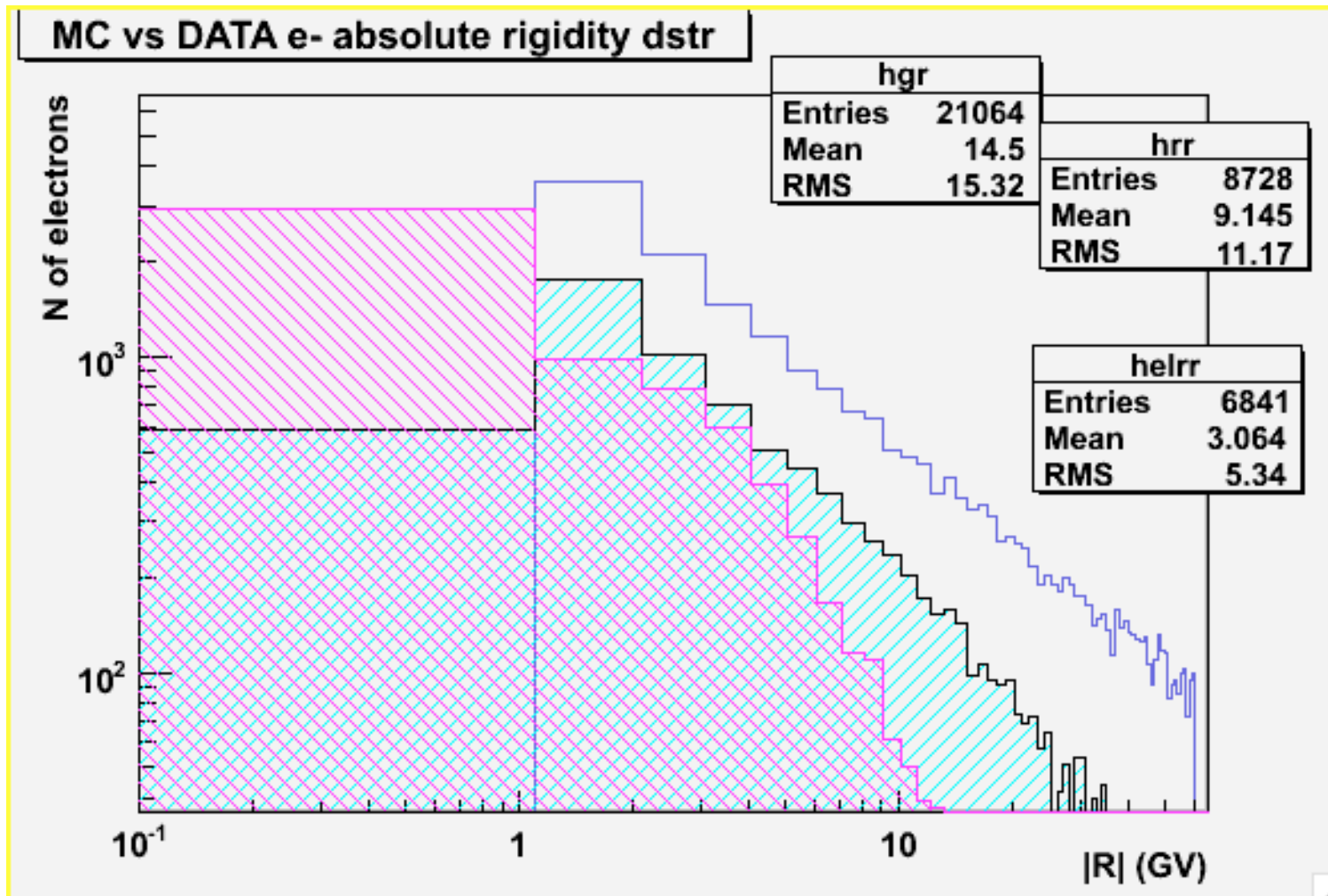
Rigidity distribution: p



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Rigidity distribution: e-



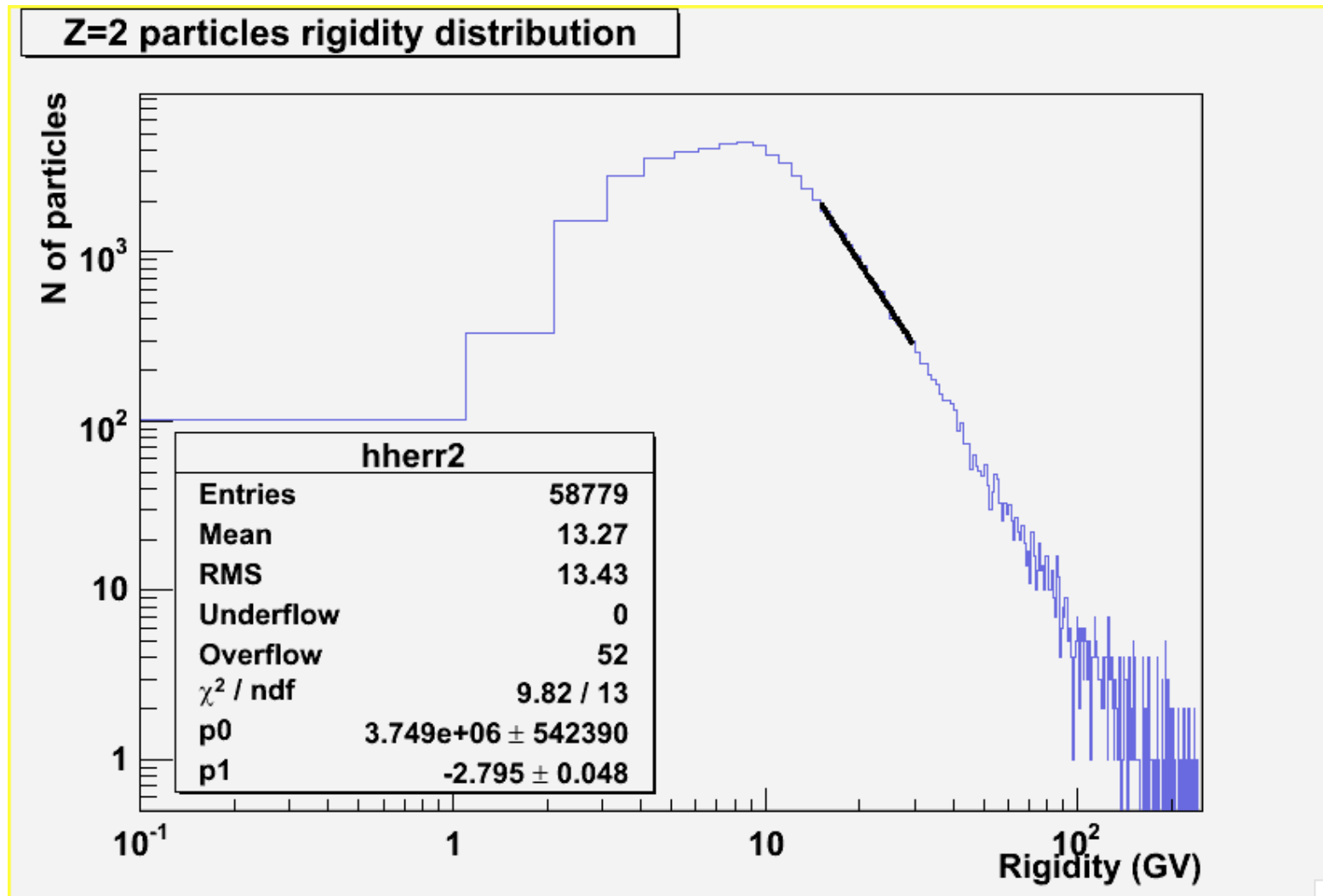
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Comments on rigidity distributions:

- DATA and MC rigidities do not follow same power law distribution
- MC reconstructed distributions bent down at high rigidities

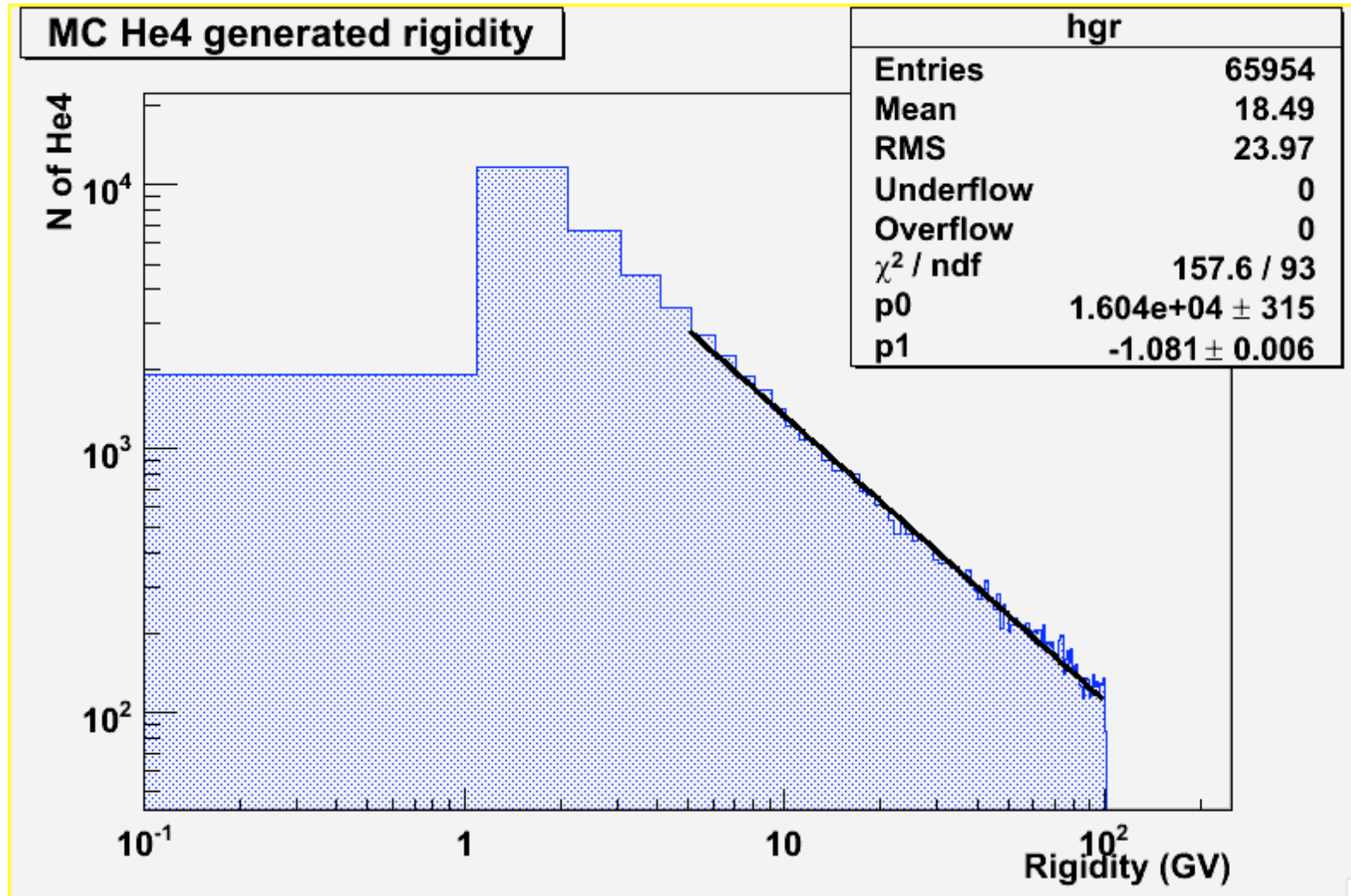
DATA He R: fit with a power law



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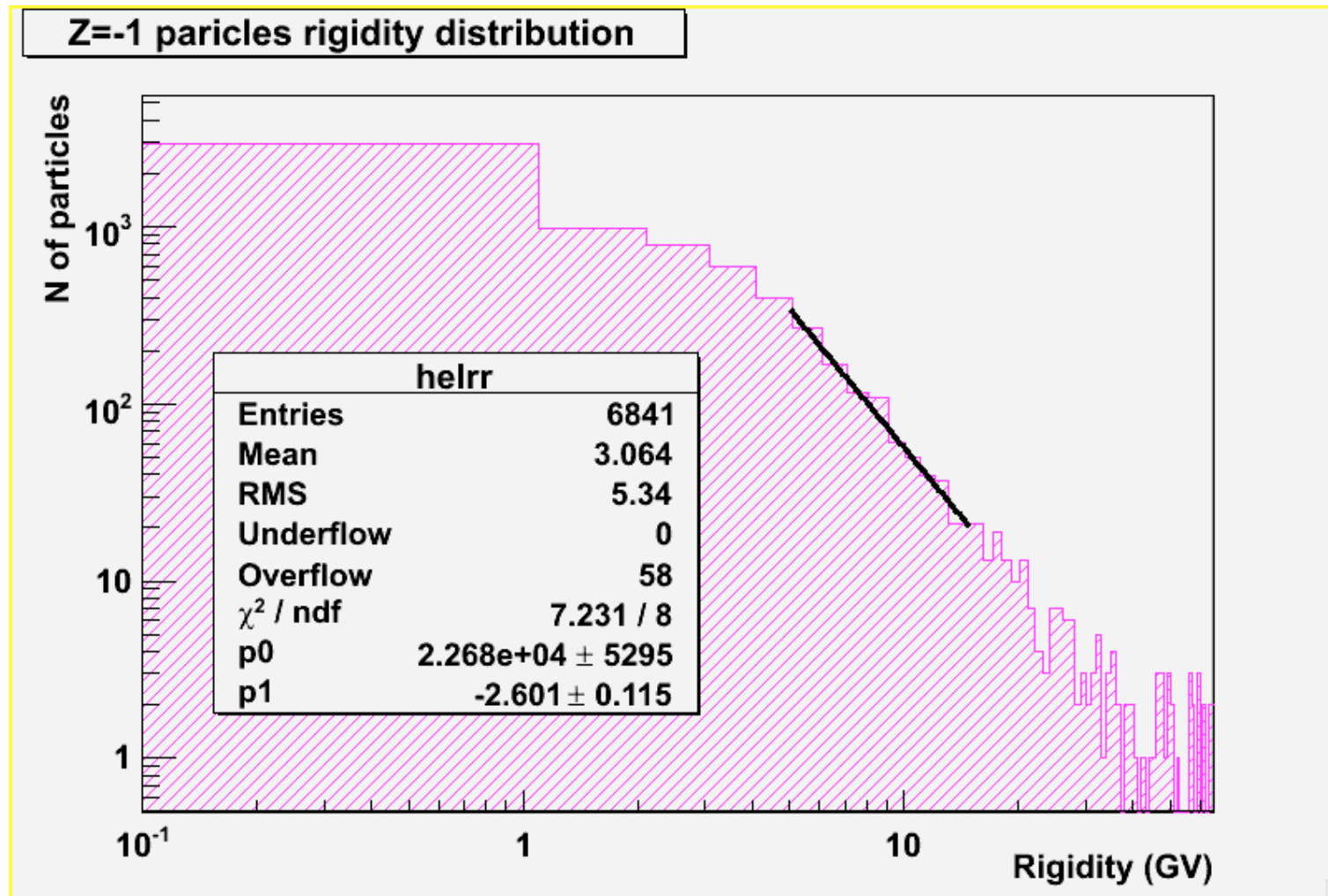
MC He4 generated R: fit with a power law



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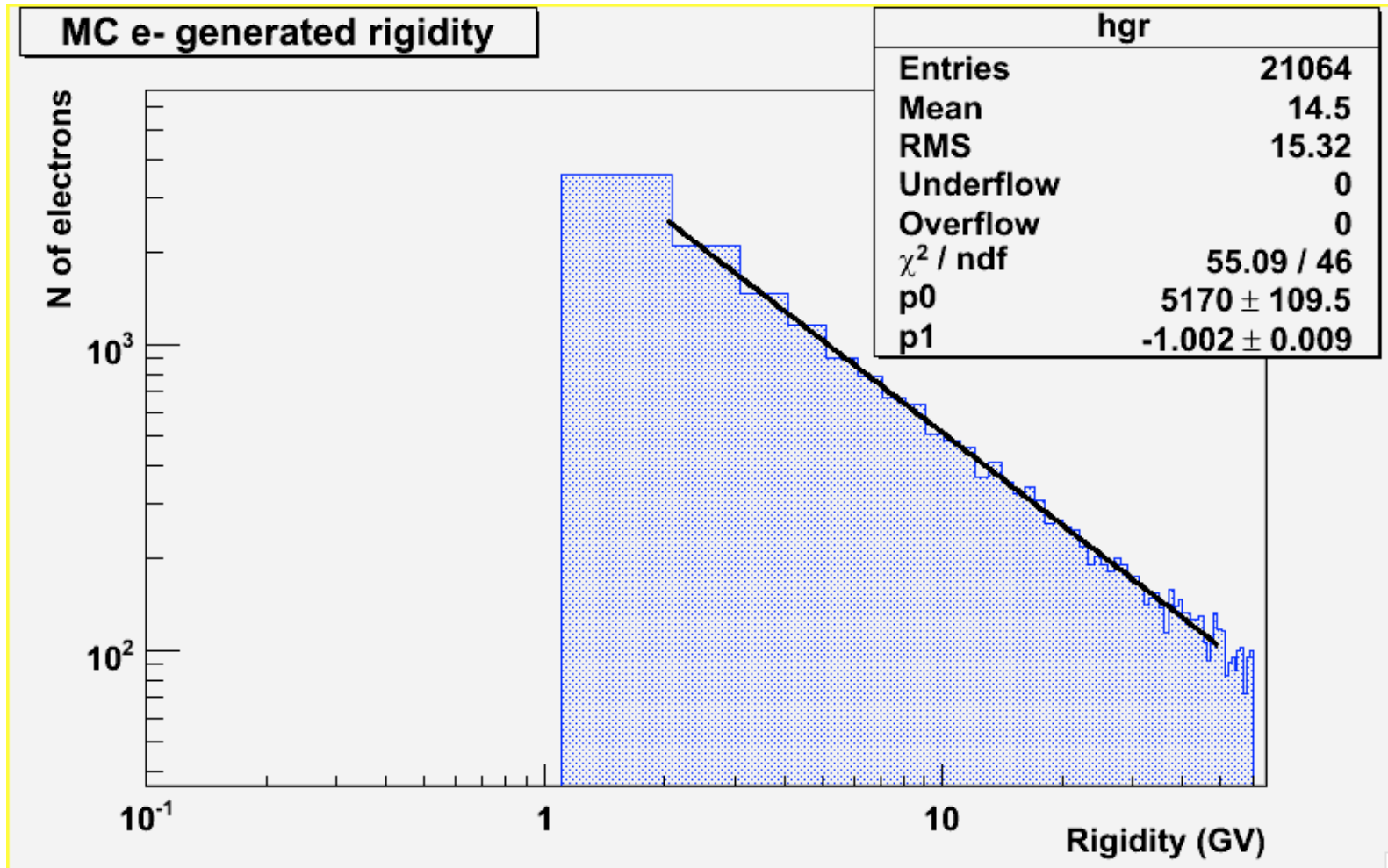
DATA e- R: fit with a power law



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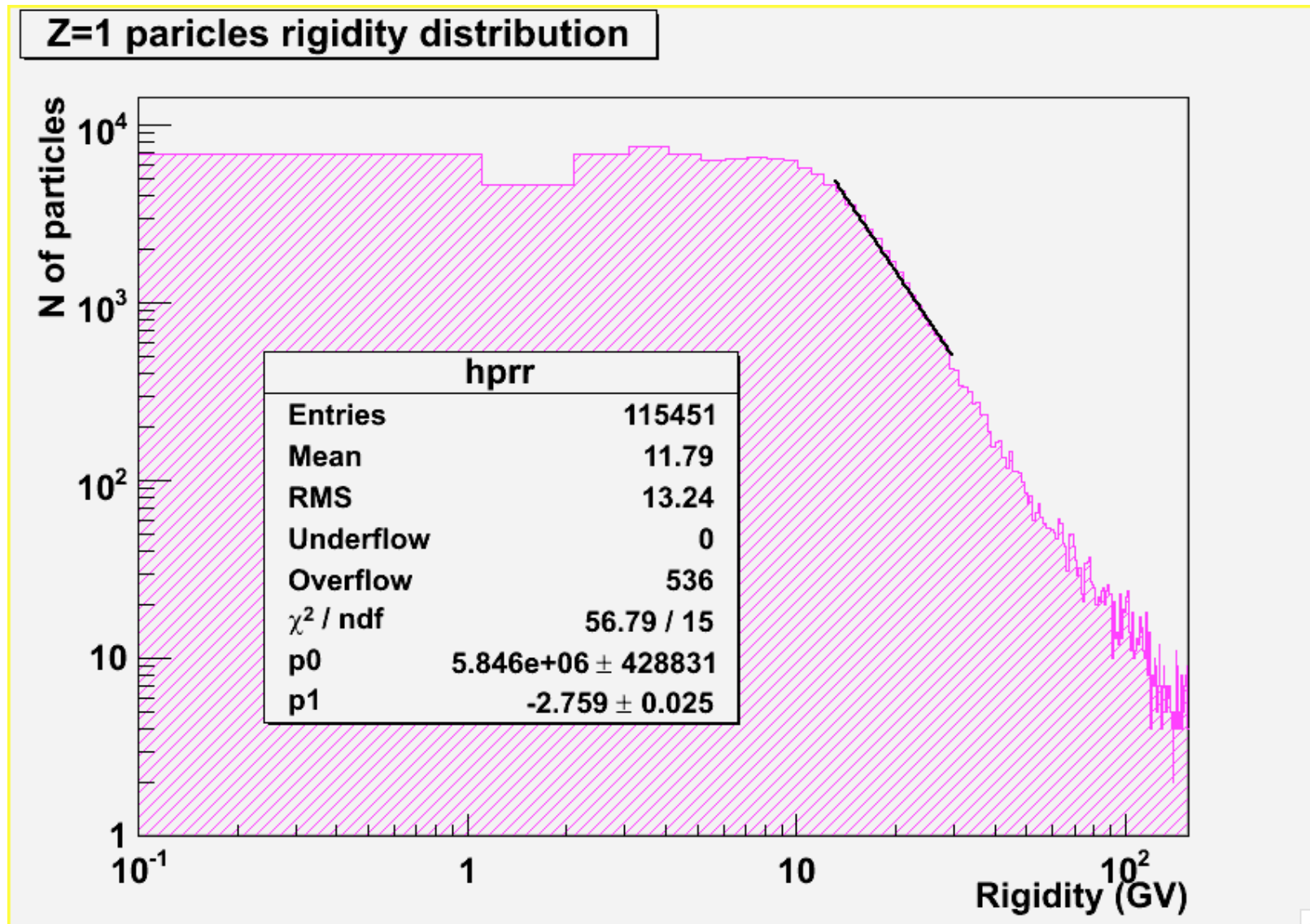
MC e- generated R: fit with a power law



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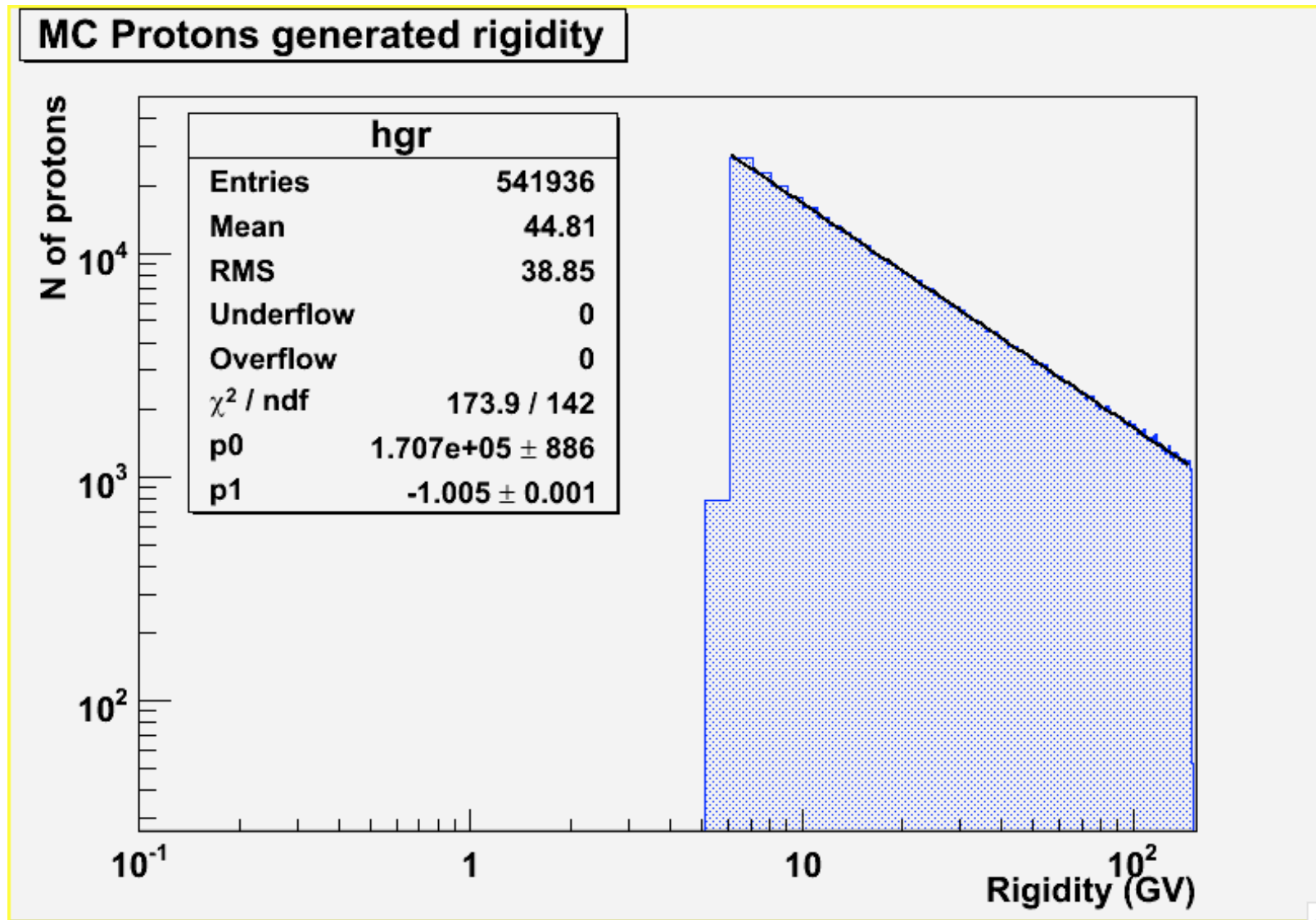
DATA p R: fit with a power law



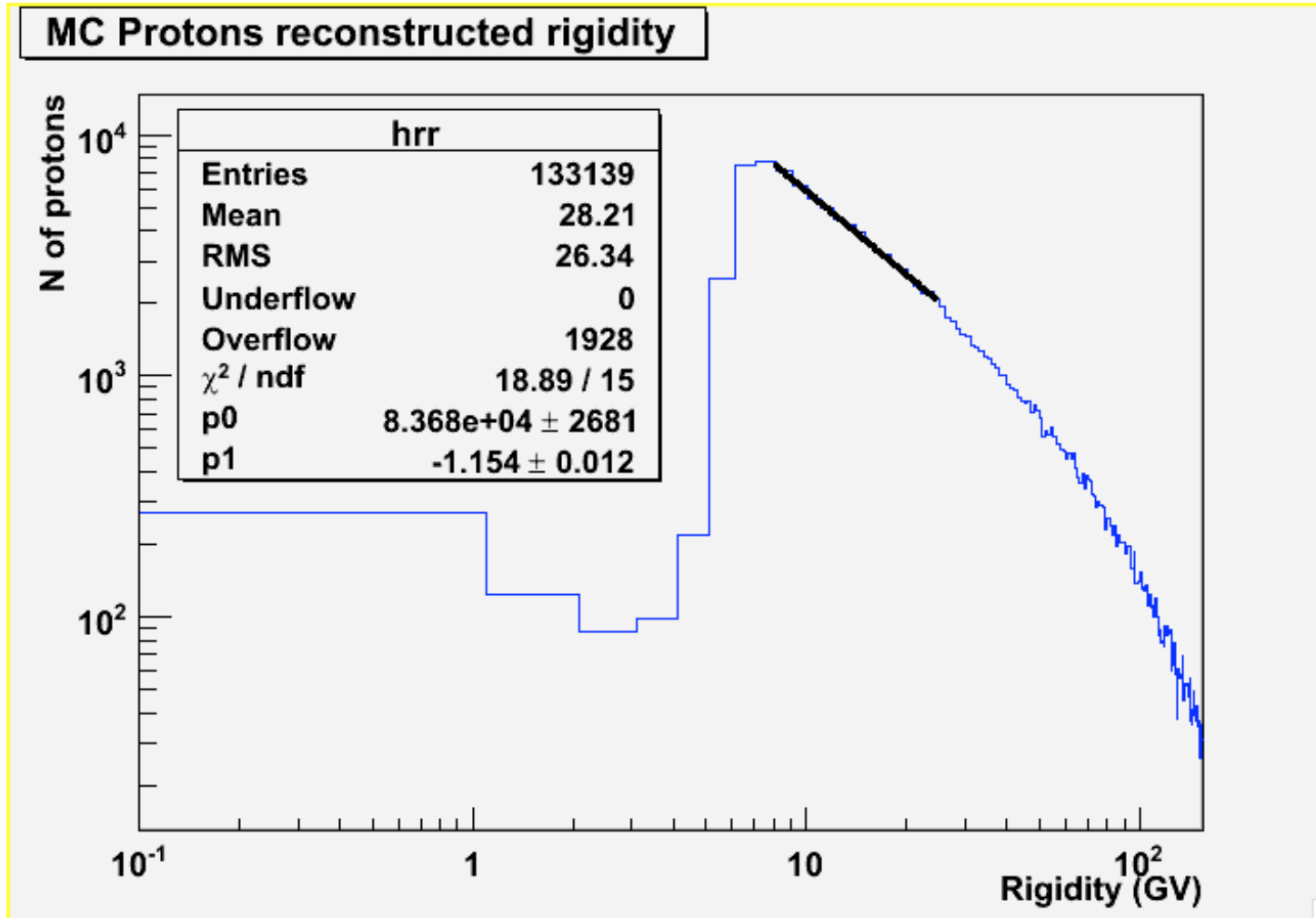
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MC p generated R: fit with a power law



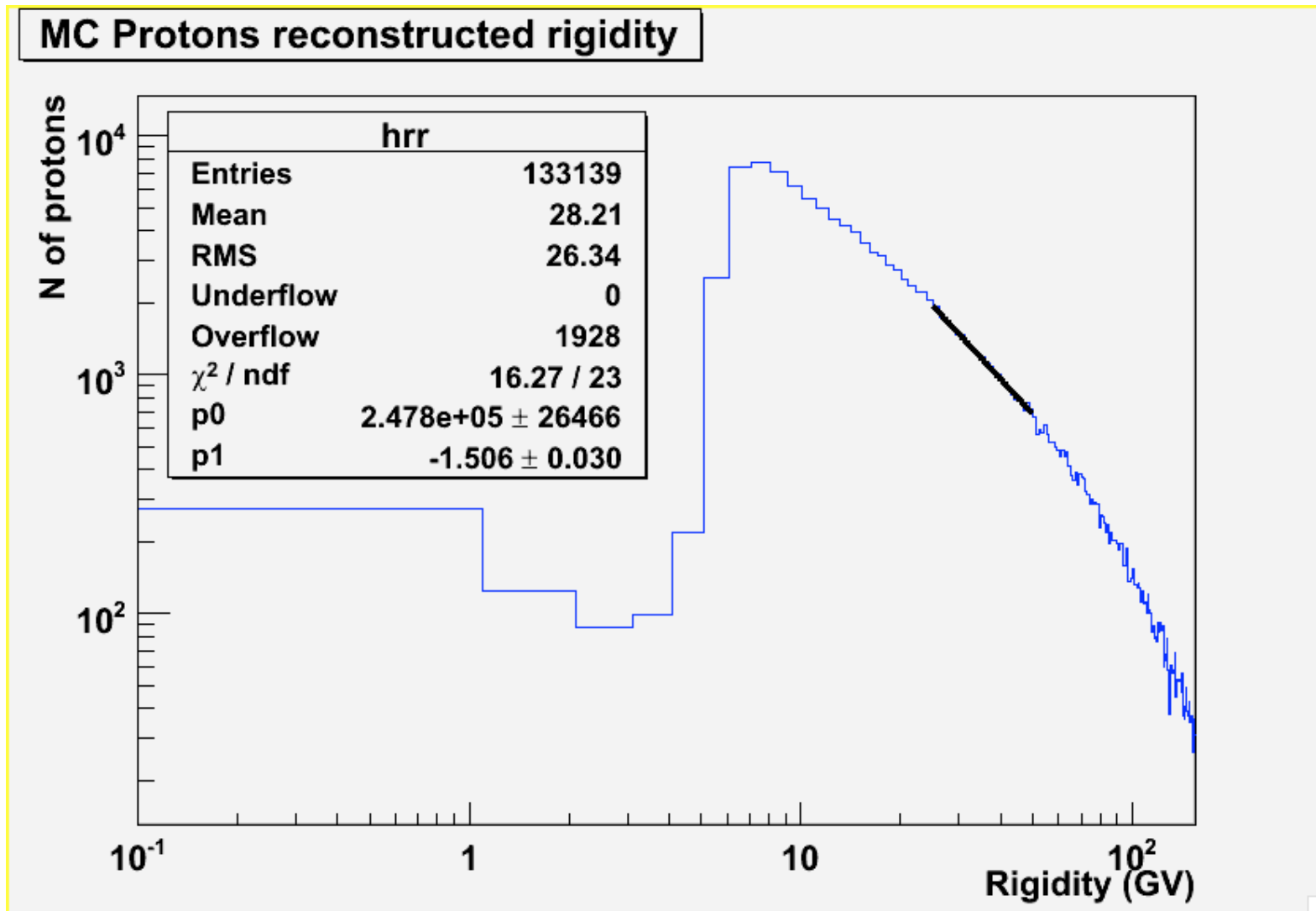
MC p reconstructed R: fit with a power law



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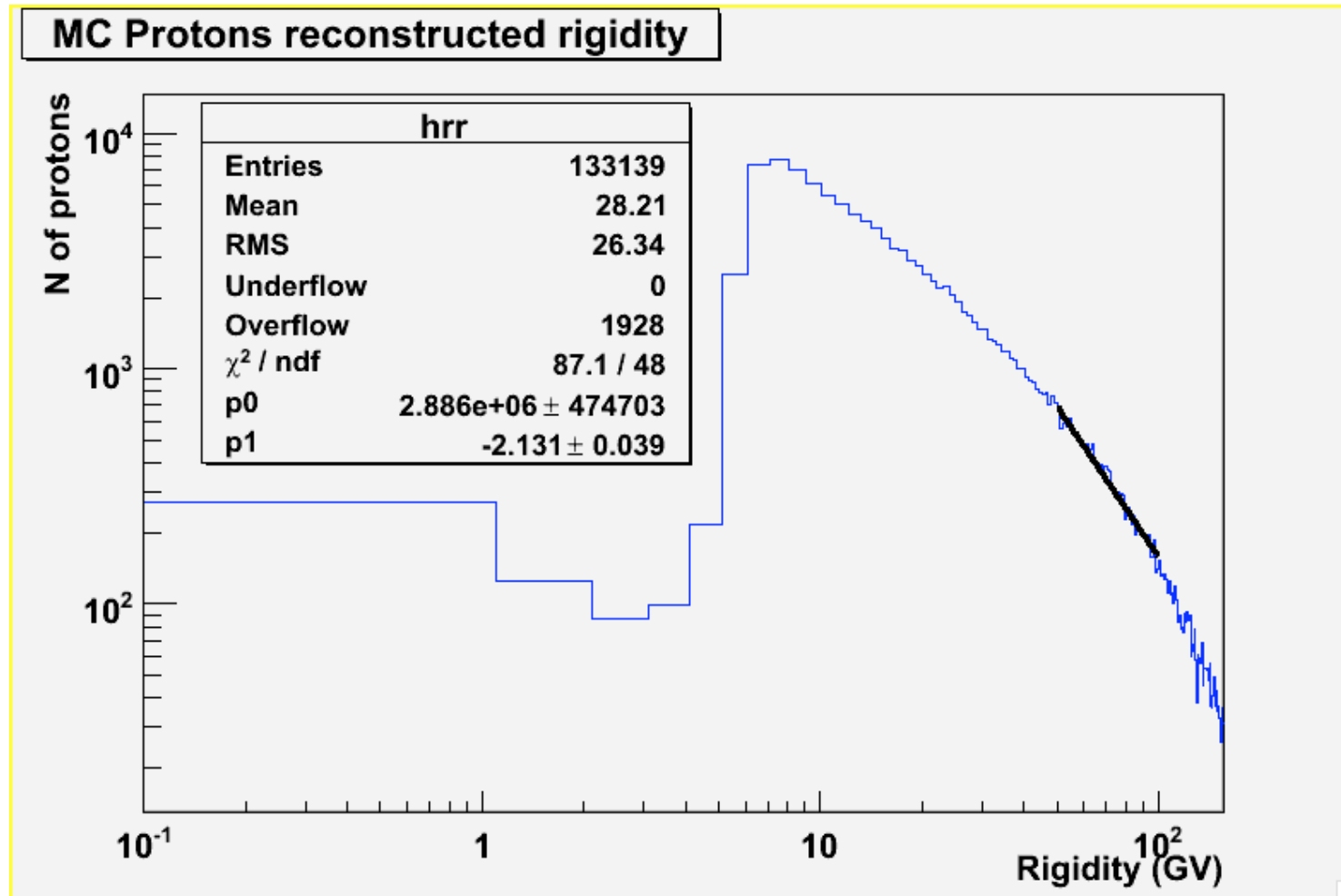
MC p reconstructed R: fit with a power law



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MC p reconstructed R: fit with a power law



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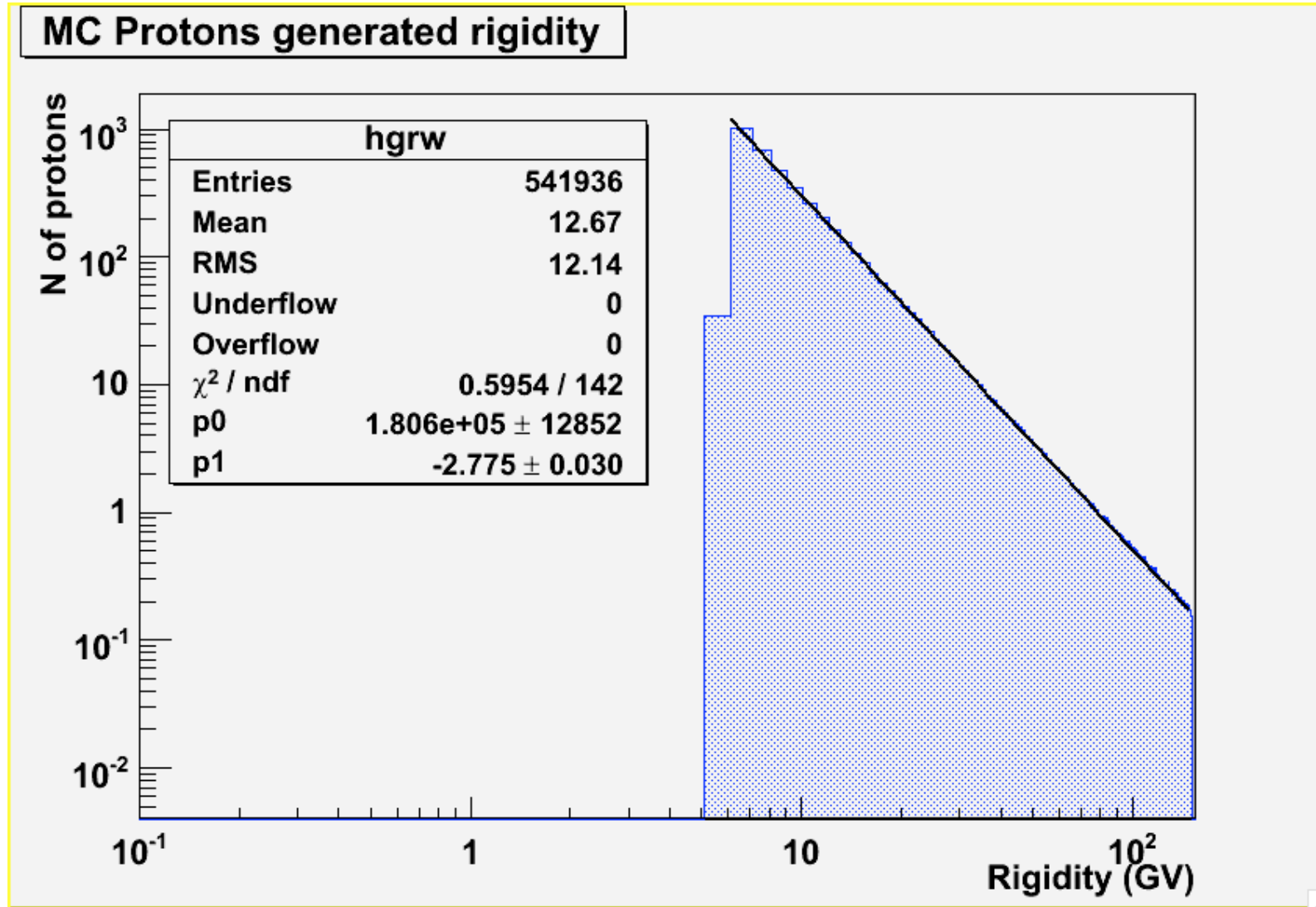
- DATA rigidity $\sim R^{-2.75}$
- MC generated rigidity $\sim R^{-1}$
over the entire range

⇒ weight

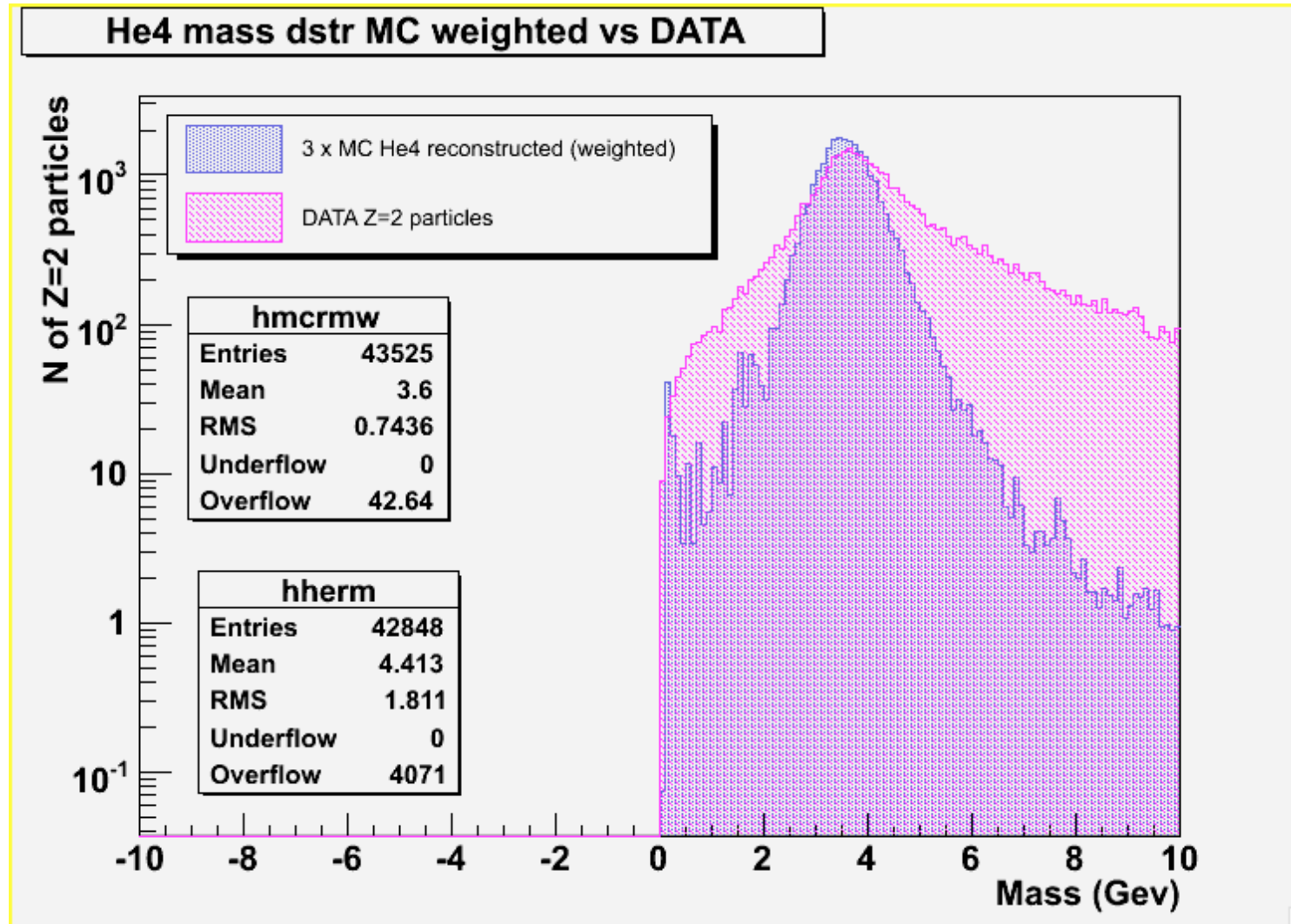
- MC reconstructed rigidity
doesn't follow a unique
power law over the entire
range

⇒ due to resolution functions
convolution?

MC p generated R weighted: fit with a power law



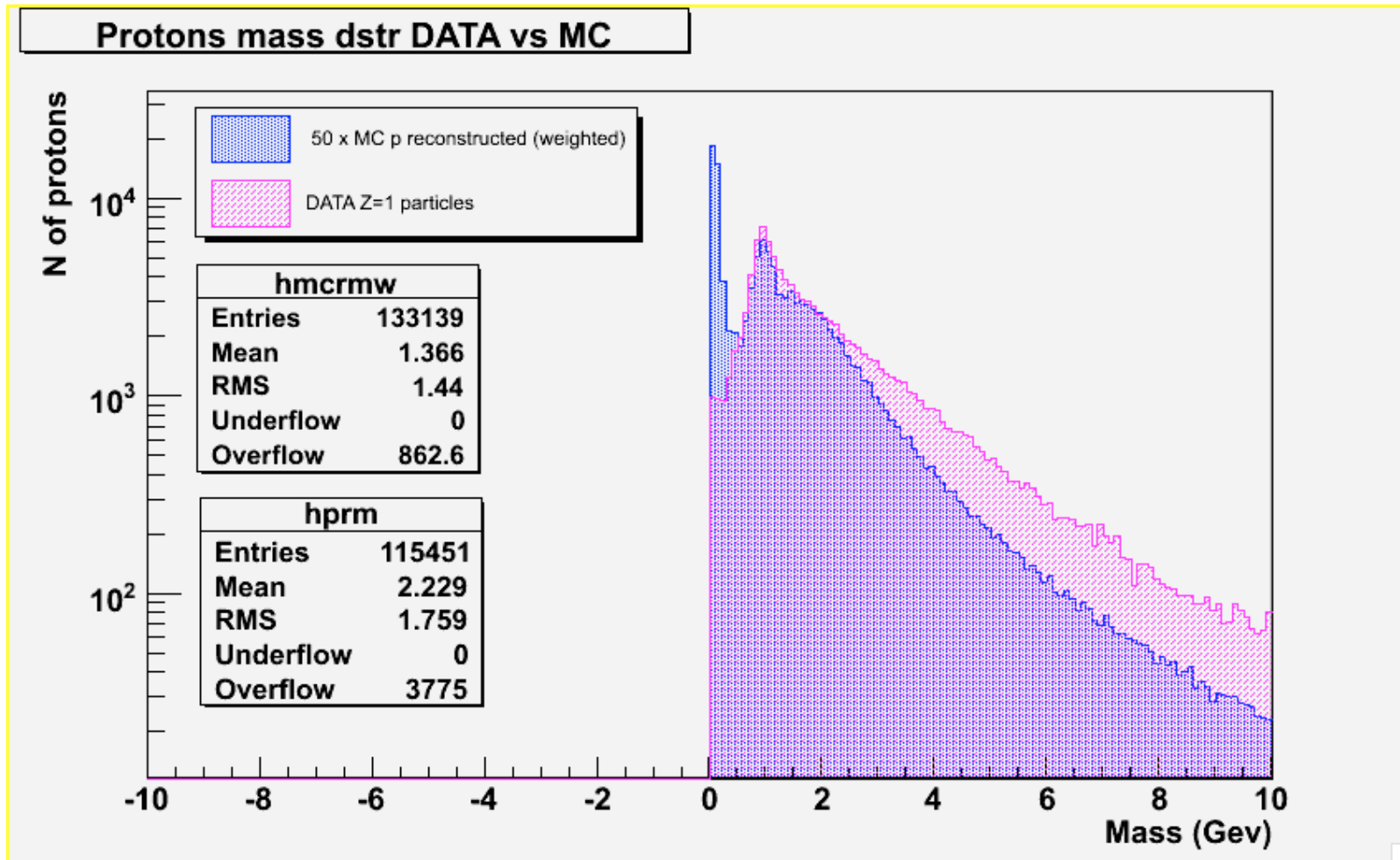
Mass weighted distribution: He



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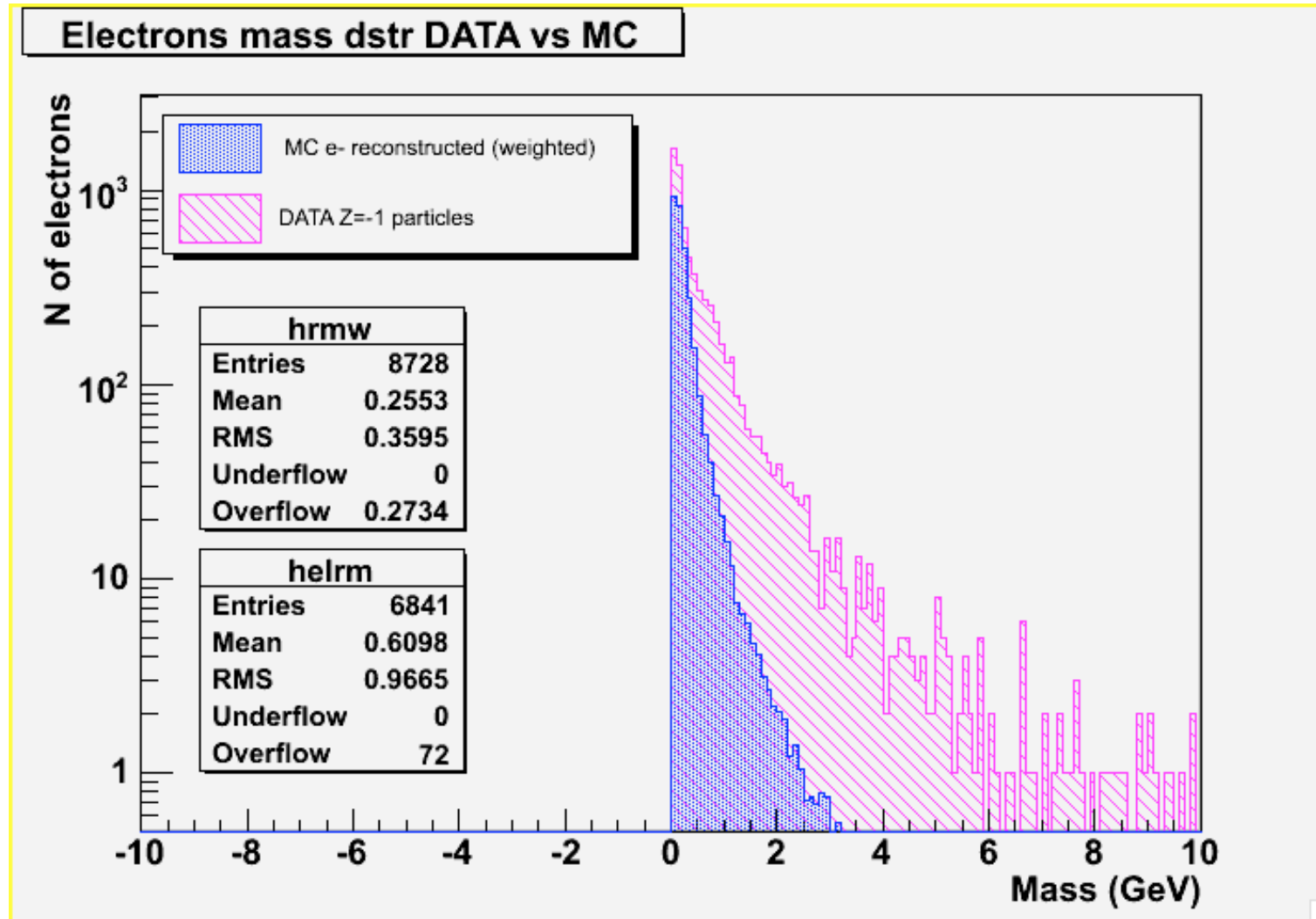
Mass weighted distribution: p



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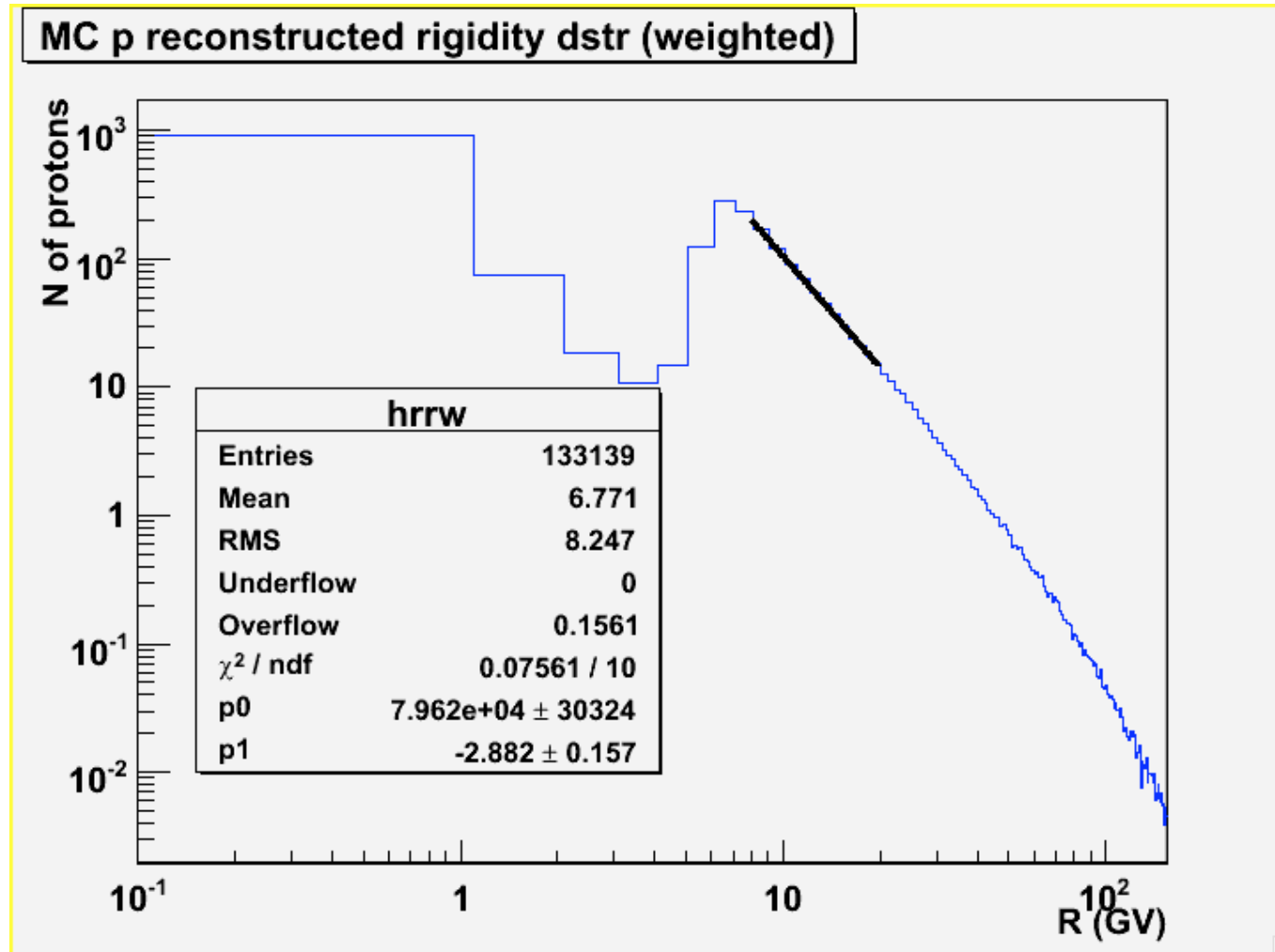
Mass weighted distribution: e-



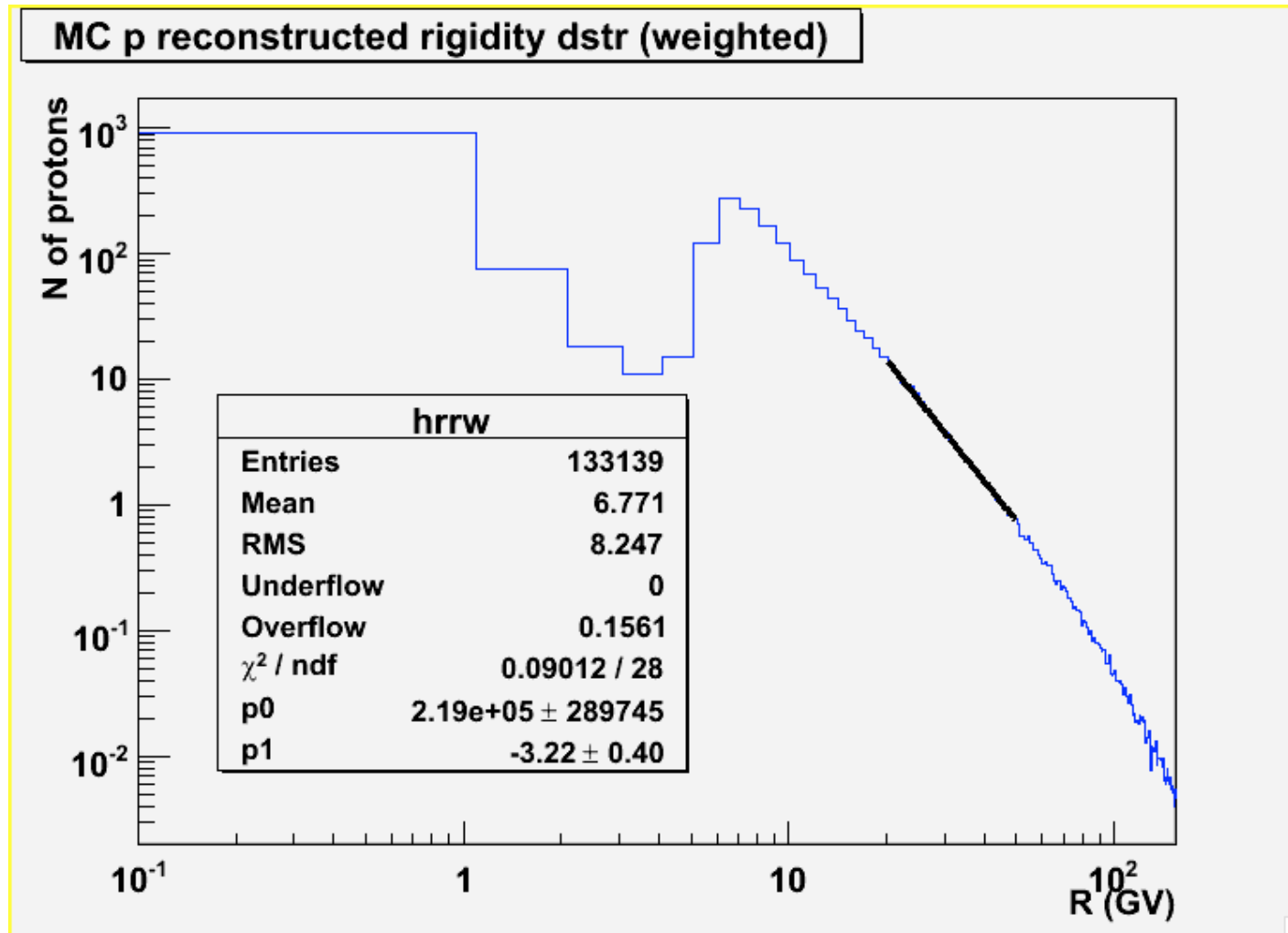
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MC p reconstructed R weighted : fit with a power law



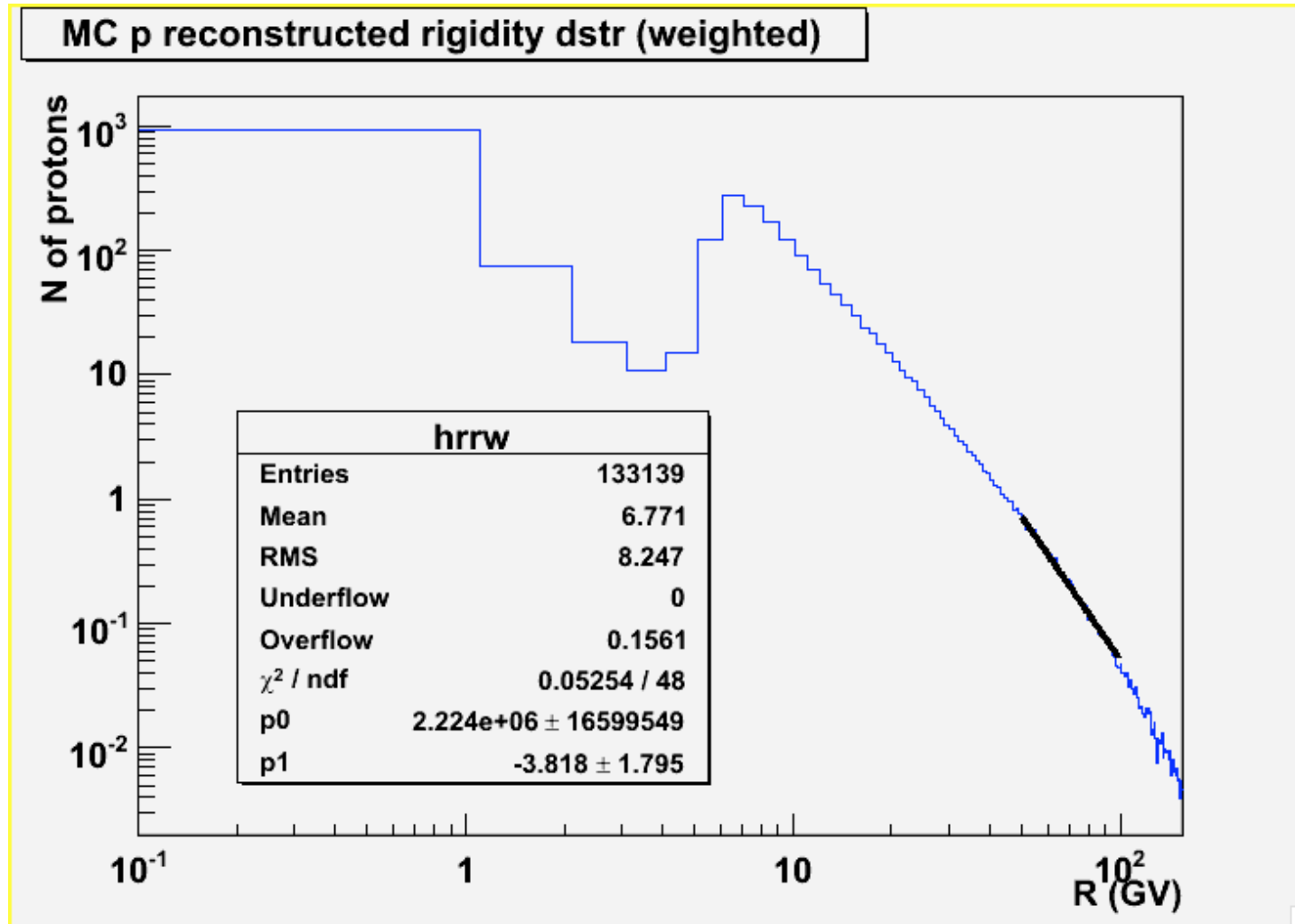
MC p reconstructed R weighted : fit with a power law



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MC p reconstructed R weighted : fit with a power law



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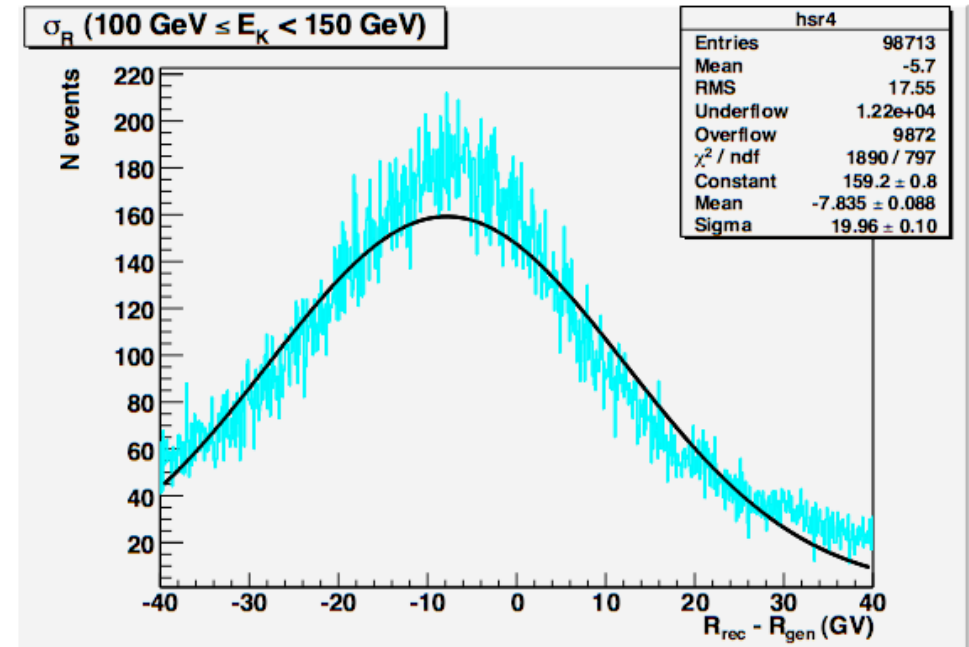
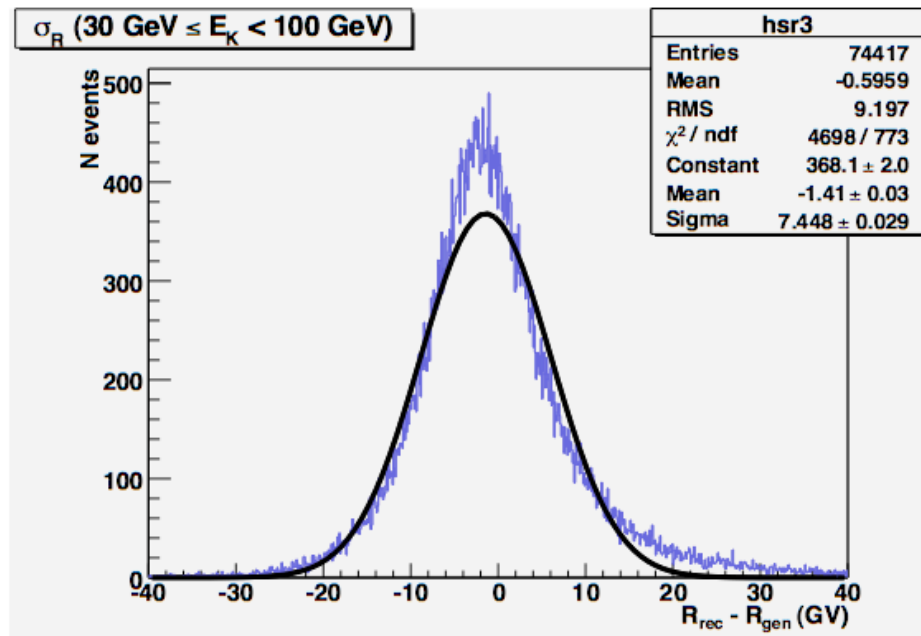
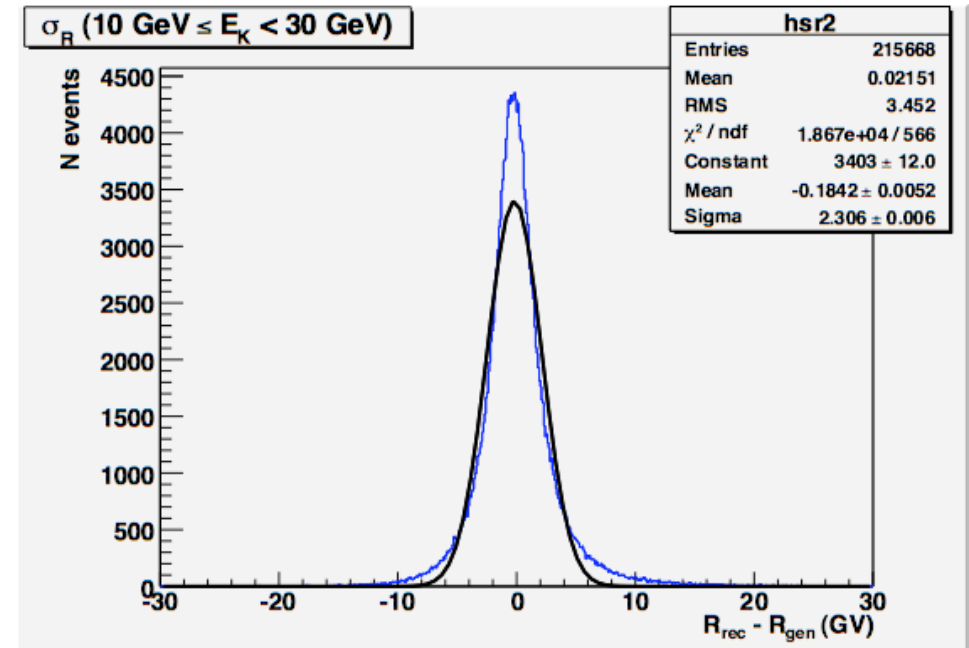
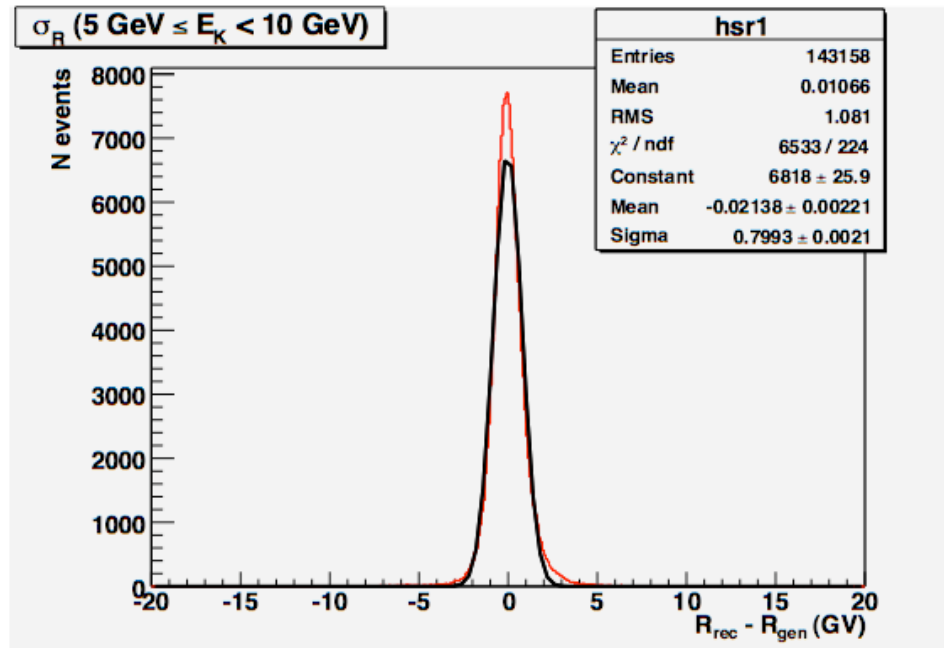
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MC p generated R weighted:
convolution with resolution functions

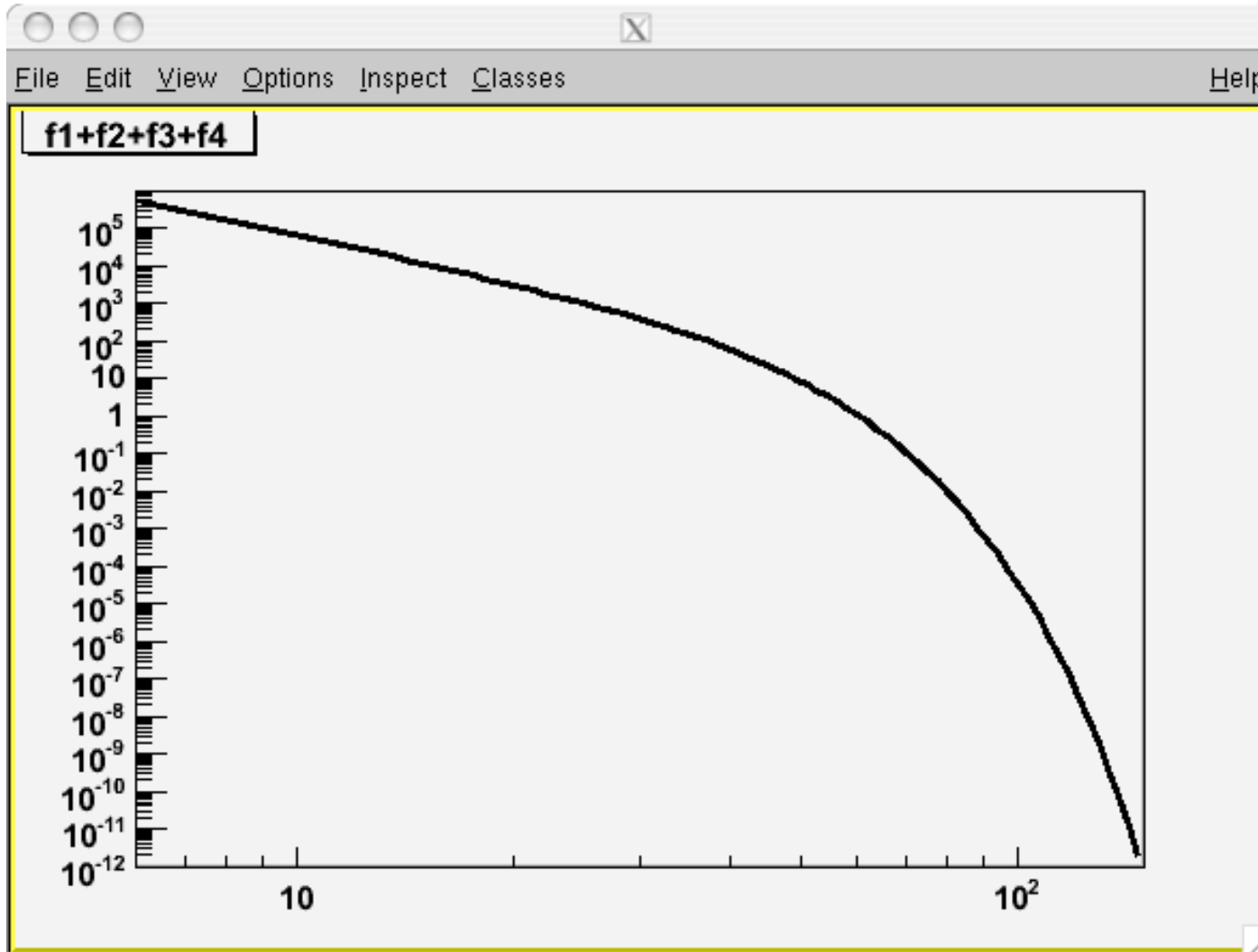
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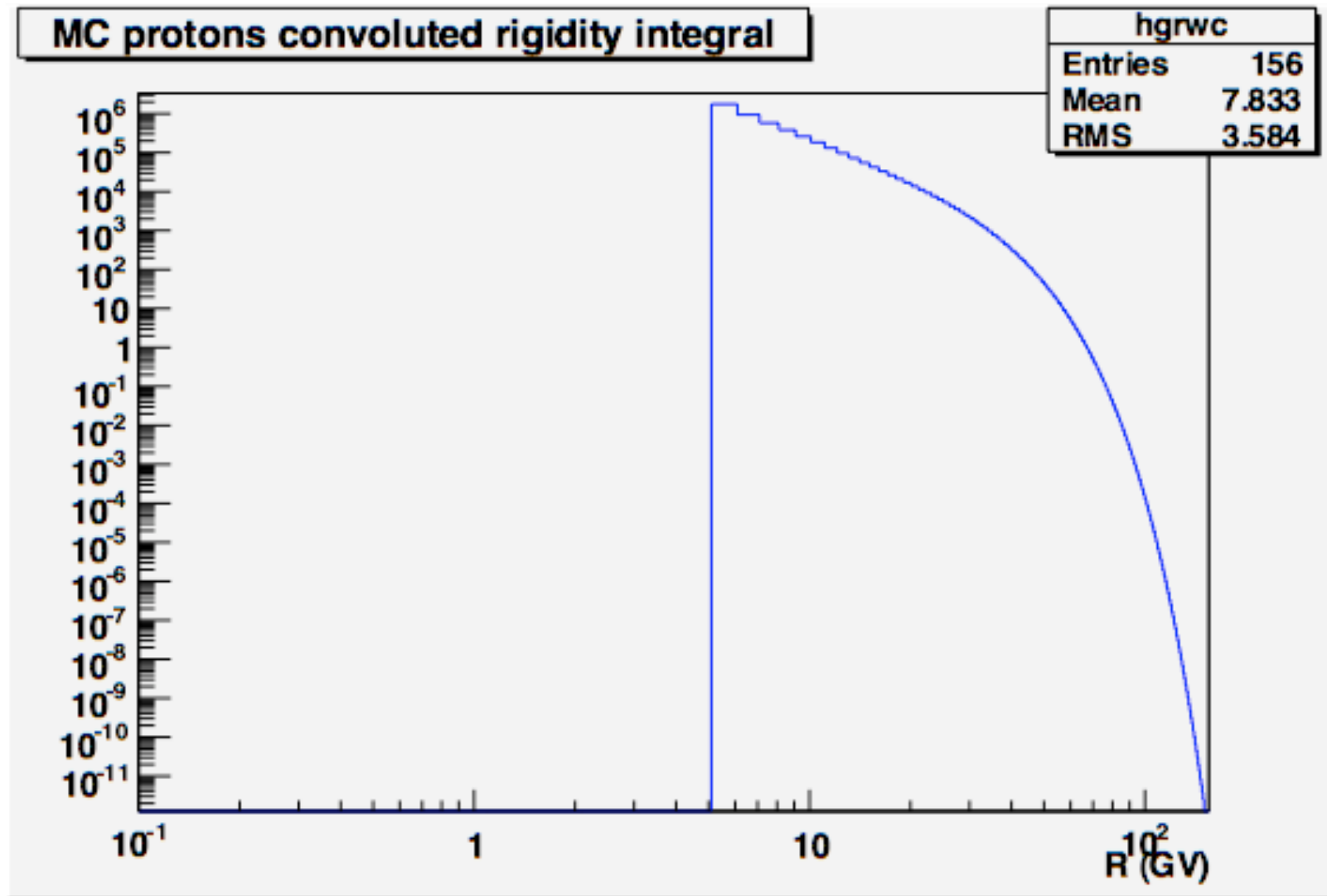
Resolution functions



MC p generated R (weighted) convoluted with resolution functions



Integral of convoluted dstr ~ MC reconstructed dstr



- MC reconstructed rigidity doesn't follow a unique power law over the entire range
- ⇒ need resolution functions
deconvolution