Subject: Large momenta from BOX genarator
Posted by AndreiSemenov on Wed, 18 Nov 2020 14:52:14 GMT
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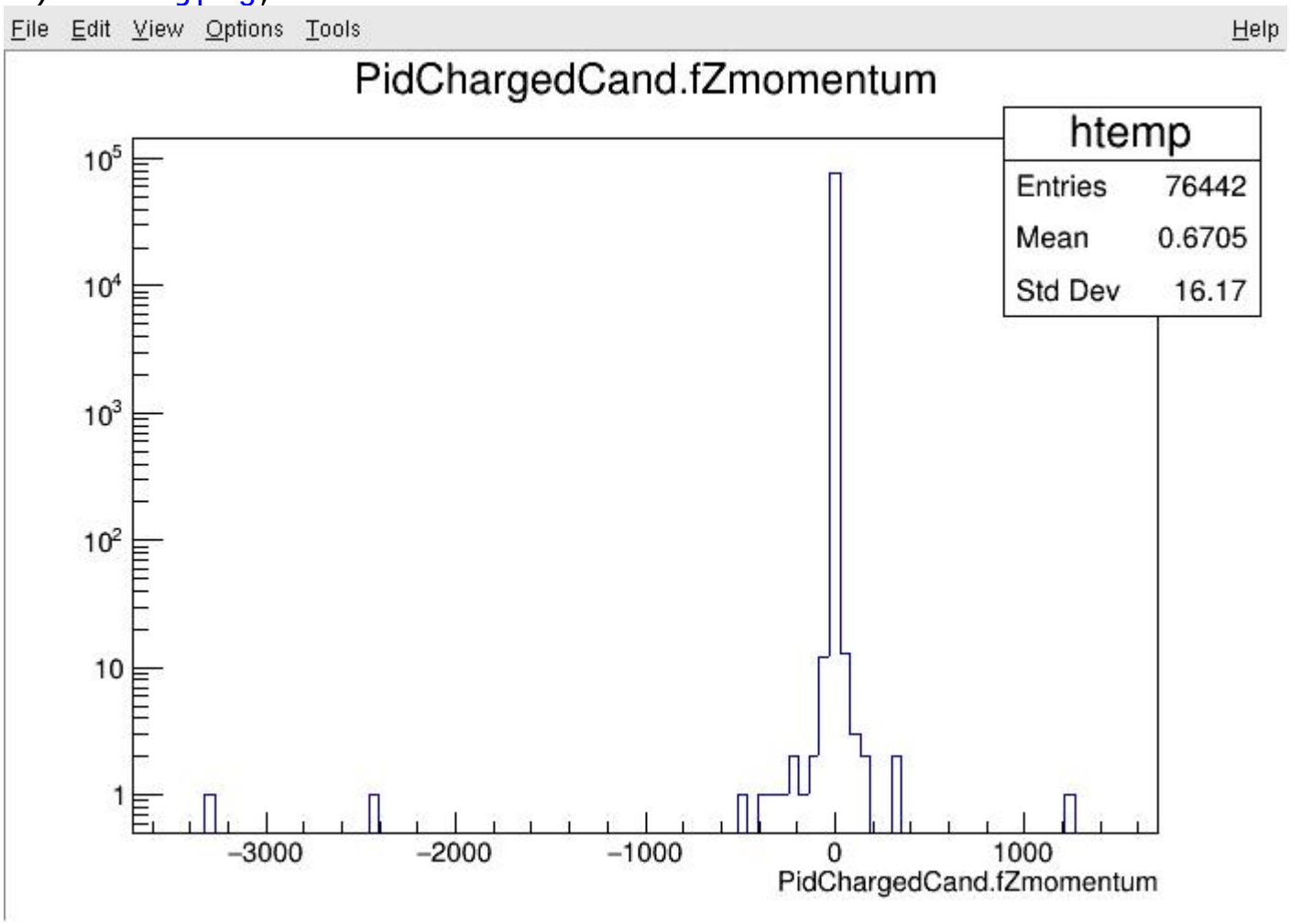
Hello,
I generate single muon events with 5 GeV momentum by the BOX generator. However I get events with very large momenta from detector, so for 100,000 initial muons there are 12 events with p > 100 Gev and several events with p > 1000 events. How is this possible, is something incorrect? PandaRoot Oct19 is used.

Data directly from signal_pid.root file, 100,000 initial events.

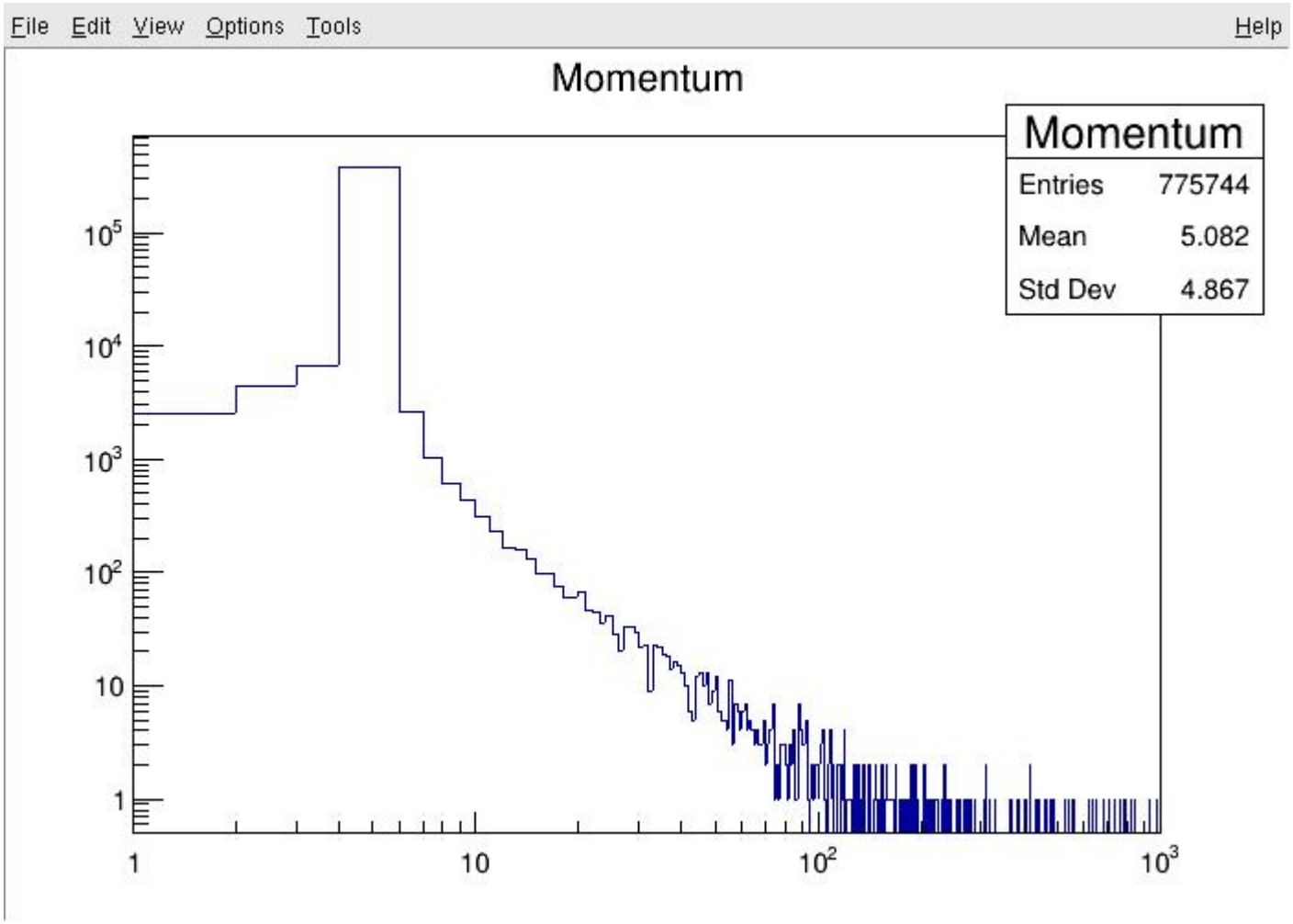
Data made by tut_ana.C tutorial program. 1,700,000 initial events.

File Attachments

1) zmom.jpeg, downloaded 2153 times



2) mom.jpeg, downloaded 2144 times



Subject: Re: Large momenta from BOX genarator
Posted by Tobias Stockmanns on Wed, 18 Nov 2020 16:04:14 GMT
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Could you please check how the distribution looks like for primary particles?

Cheers,

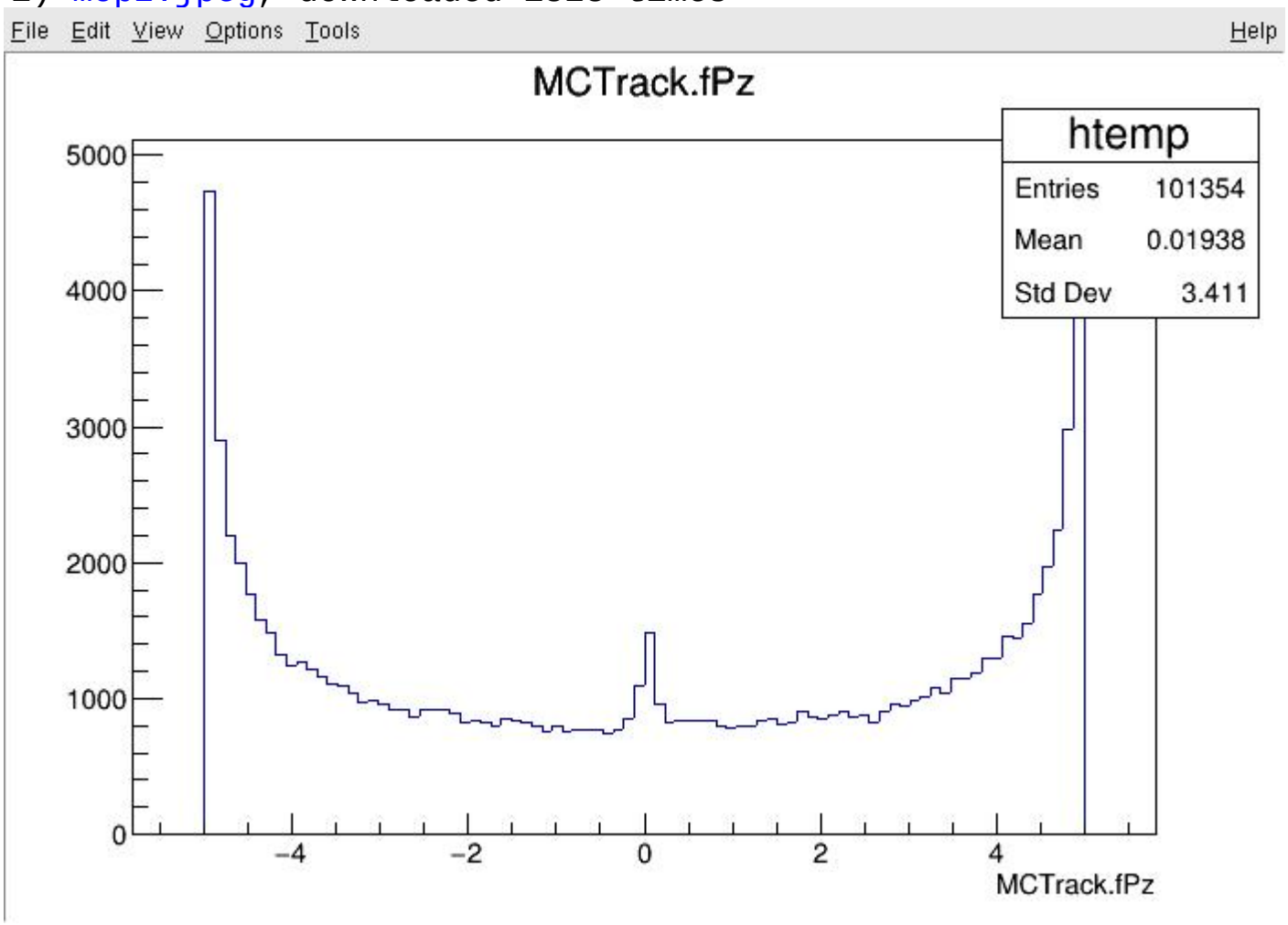
Tobias

Subject: Re: Large momenta from BOX genarator
Posted by AndreiSemenov on Wed, 18 Nov 2020 18:31:12 GMT
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I use BOX generator as following:
TString inputGenerator =
"box:type(13,1)(5,5):phi(0,360):tht(5,175)";
(sorry some semicolon turn into smile)
so I expect monochromatic muons in initial state. I hope following plot is relevant:

File Attachments

1) mcpz.jpeg, downloaded 1828 times



Subject: Re: Large momenta from BOX genarator
Posted by Tobias Stockmanns on Thu, 19 Nov 2020 06:18:02 GMT
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Dear Andrei,

could you please plot the start vertex (maybe in some projections) of the particles with momentum > 5 GeV/c and what type of particles they are?

Cheers,

Tobias

Subject: Re: Large momenta from BOX genarator
Posted by AndreiSemenov on Mon, 23 Nov 2020 18:14:42 GMT
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Hello,
Positions for particles with large momenta have relatively larger coordinates. Do not know how to draw them in a representative way.
I studied P3Cov() method of RhoCandidate that gives 3x3 covariance matrix of momentum vector. Estimating the std.dev. as square root of the sum of diagonal elements, it correlates with large momenta. The plot for correlation of this std.dev. and actual error for momentum of 5 GeV muon is attached, X is actual error and Y is std.dev. Most events have std.dev. 0.2 and actual error up to 0.5 GeV, but there are several events with std.dev. 0.2 and actual error 3 - 4 GeV, near 100% of actual value. Are there some ways of rejecting events with badly measured momenta?

File Attachments

1) errors.jpeg, downloaded 2665 times

