Subject: Re: Stepsize in TPC Simulation with new external packages
Posted by Mohammad Al-Turany on Mon, 03 Dec 2007 13:28:37 GMT
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Hallo,

I just make the comparison for dedx in the TPC, and what I see also a problem but a little bit deferent than yours! first I compared G3 with and without step limitation and the results where exactly the same. (see attached histograms) To do this I modified the PndTpcDetector.cc so that
1. Sum the energy loss over all steps inside the TPC for each track
2. take the track length at the first step (Entering) and the track length at exiting, and put the difference in the TPCPoint.
3. select on one type of particles

without step limit (remove AUTONULL and extra parameters from media file)

.

and this one with the limits!

So it is the same as expected. Now if I compare with the wonderful state of the art most advanced Monte Carlo engine I have the following plots for:

with step limitation. And the next one without step limitation (remove the StepLimiter from g4Config.C):

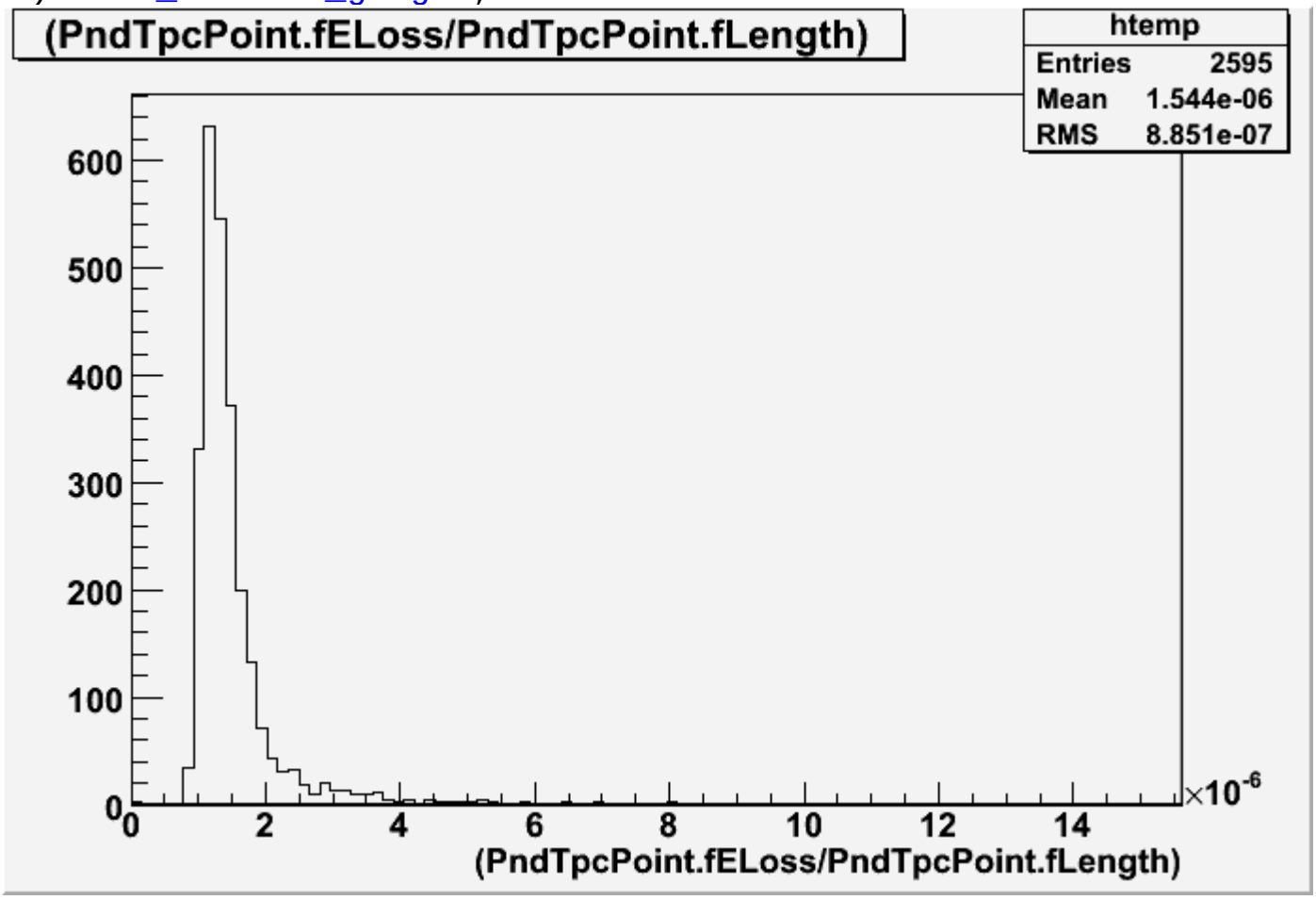
now comparing G4 results with and without step limitation:

and this is not the whole story, if you compare with mu (5000 mu, 0.5 GeV) only G4 with and without step limitation you will see:

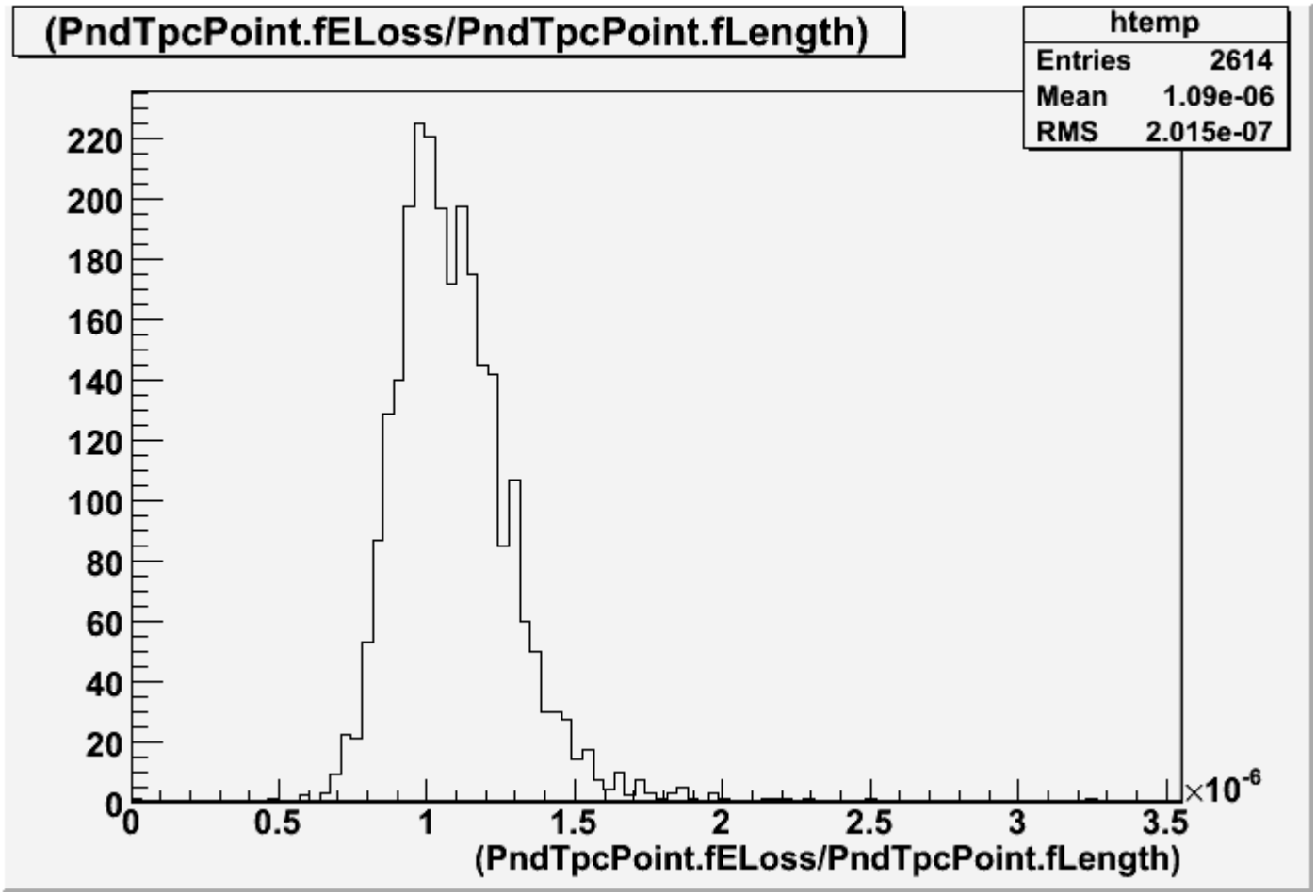
So from all this I would say the shape of dedx is ok, but we have to understand the difference between G3 and G4 and the inconsistence behavior of G4!!

File Attachments

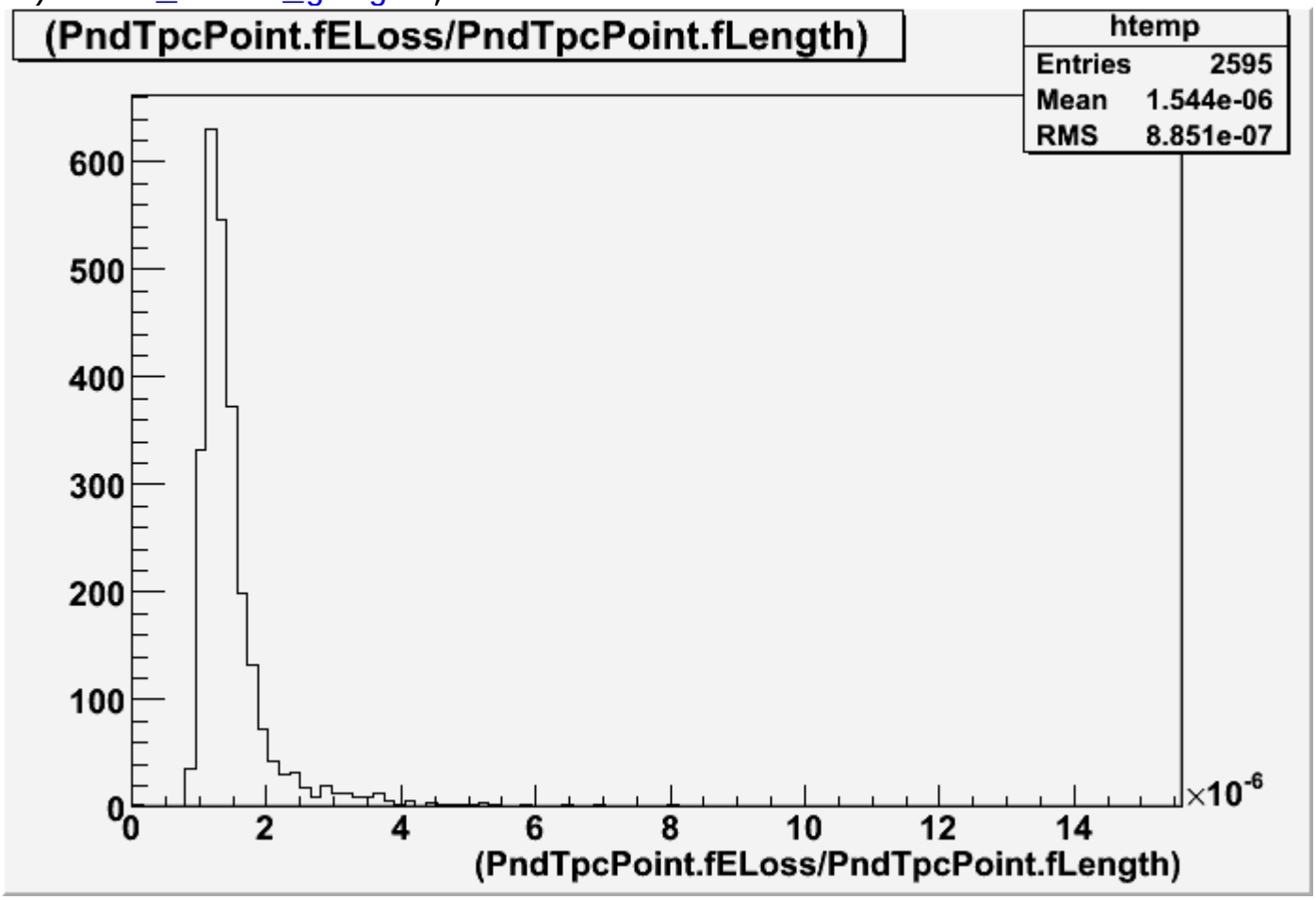
1) dedx_nolimit_g3.gif, downloaded 1604 times



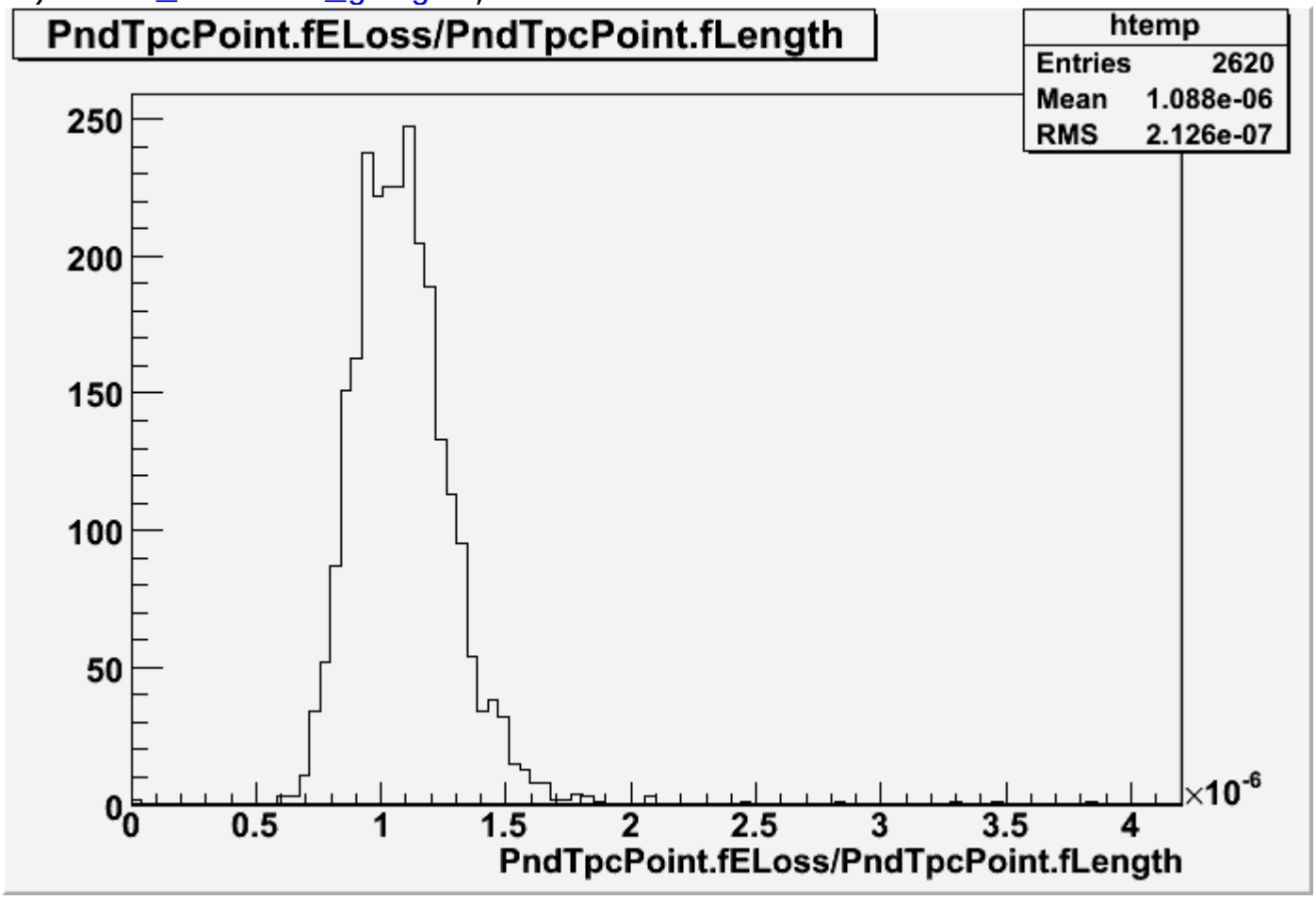
2) dedx_limit_g4.gif, downloaded 1588 times



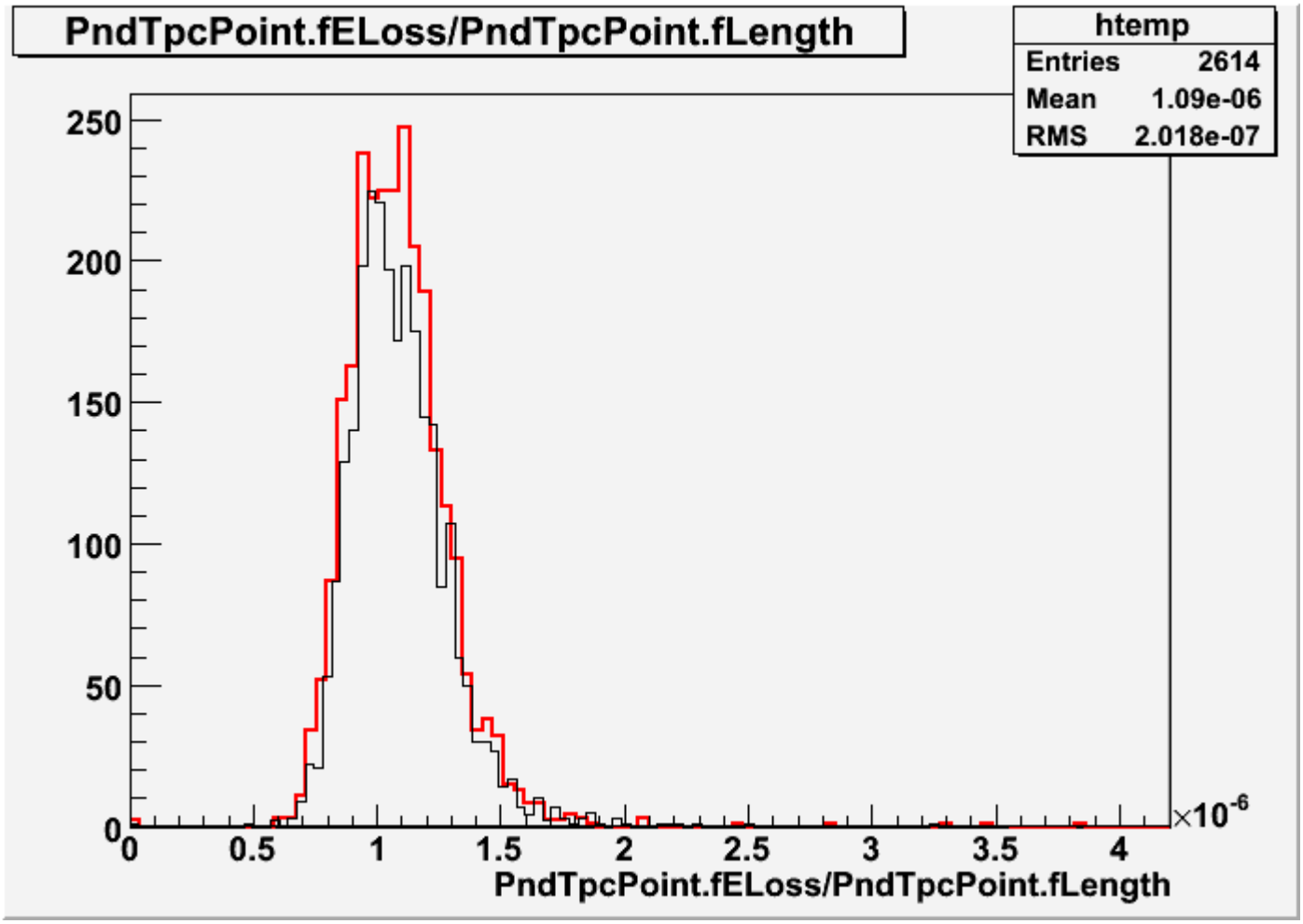
3) dedx_limit_g3.gif, downloaded 1566 times



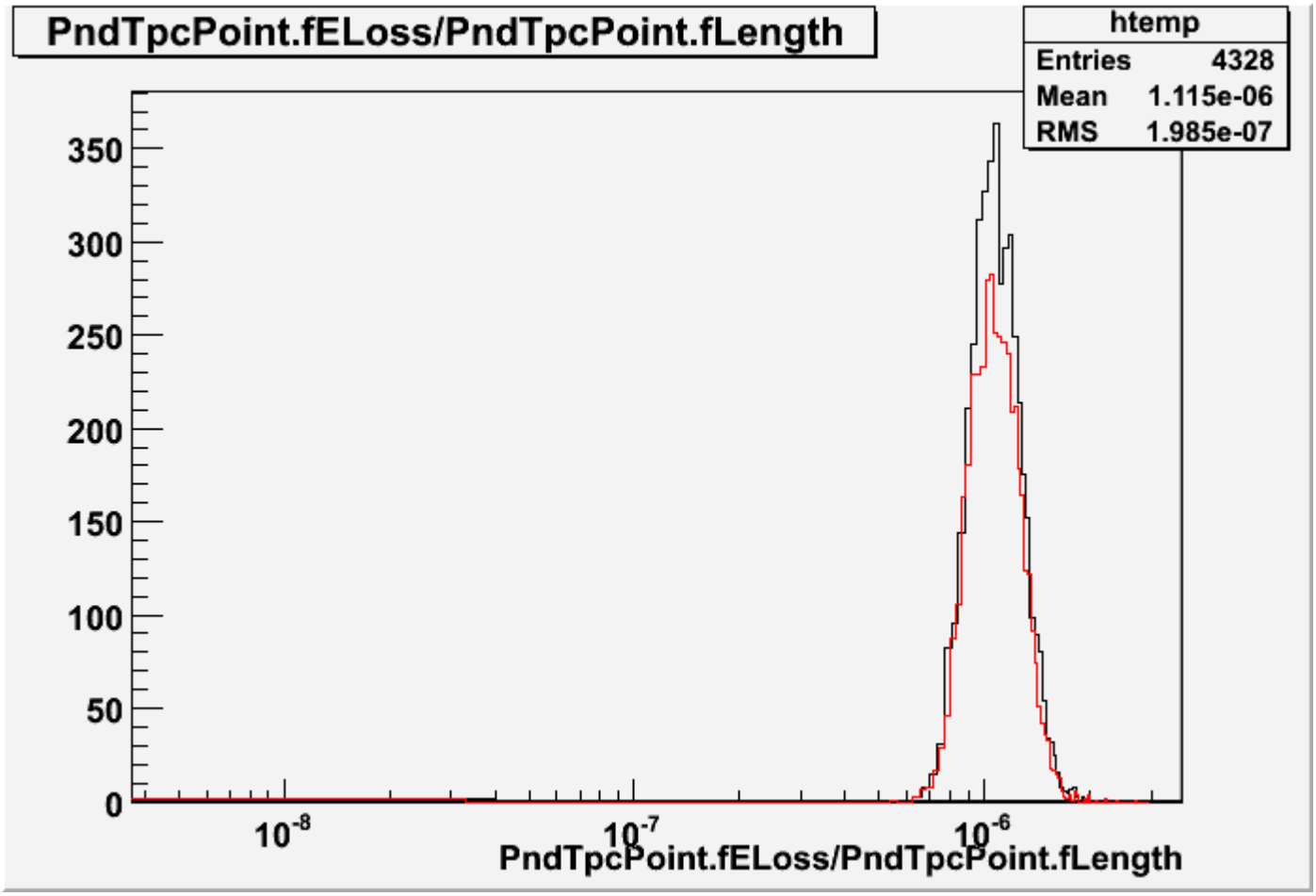
4) dedx_nolimit_g4.gif, downloaded 1706 times



5) g4pi.gif, downloaded 1615 times



6) g4mu.gif, downloaded 1579 times


PndTpcPoint.fELoss/PndTpcPoint.fLength
htemp
Entries 4328
Mean 1.115e-06
RMS 1.985e-07
350
300
250
200
150
100
50
0
10^-8
10^-7
10^-6
PndTpcPoint.fELoss/PndTpcPoint.fLength