
Subject: Initial 4 vector in EvtGen(Direct)

Posted by [MartinJGaluska](#) on Thu, 10 Jul 2014 17:30:32 GMT

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Dear all,

when I run a simulation with the standard sim macro from macro/run and set the beam momentum to 8.636 GeV/c the initial 4 vector is set to the following values:

$(E, p_x, p_y, p_z) = (9.62509, 0, 0, 8.636)$

(I have checked the equations and they seem fine to me.)

I want to simulate the process
 $p + \bar{p} \rightarrow X(4260) \rightarrow J/\psi \pi^+ \pi^-$
with EvtGen(Direct).

The mass of X(4260) is set to 4.25 GeV with a width of 108 MeV and I don't use ppbarSystem as intermediate state (should I do that?).

EvtGen(Direct) gives me the following output for the initial 4 vector:

Generating with following conditions:

incident 4-mom : (10.116, 0, 0, 9.129), m = 4.357

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The output seems to depend on the random seed. Does that mean that EvtGen ignores the beam momentum which I set and instead uses its "random" beam momentum? And if so, does it use this "random" beam momentum for all events that are run with this random seed or is it different for each event?

Which is the correct 4 momentum to use when I want to calculate the missing mass or do a 4C fit?

Kind regards,
Martin

PS: After thinking about it I believe that I should insert the ppbarSystem which should reflect the beam momentum spread, is that correct?
