Subject: EvtGen - time information lost
Posted by Dominik Steinschaden on Wed, 01 Mar 2017 09:04:50 GMT
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Hi all,

I'm currently working on some algorithms for Pandaroot, which make use of the TOF counters (BTof/ScTil and FTof).
To test them under certain conditions I want to use the EvtGen generator to produce specific hyperon events.

now I realized that for such events the timing information of the tracks is wrong. It seems that the decay described in my decay file is handled by the evtGen till the final state particles are reached. and then all resulting tracks are simulated with the same start time which is equivalent to the event start time. Therefore the time information in the detectors is not correct any more. this effect can be very large for example for hyperons with a strong forward boost and therefore a large displaced vertex.

I attached a file, showing the time stamp distribution in the FTof detector for pbar p -> lambda lambda bar for 15 GeV primary momentum. Just to remind, the FTof is located around 7.8 meters in forward direction. a particle moving with speed of light should take around 26 ns to reach this detector. As shown there are signals in the detector after a few ns. Therefore for example TOF based Pid algorithms breaks down completely.

is there a possible work around to get the evtGen to also pass the correct time information to Geant3/4. or maybe geant3/4 can handle the decay of the lambdas instead of the evtGen.

LG Dominik

File Attachments

1) ftofTimeDist_genLast.pdf, downloaded 630 times