Subject: Time stamps in MCEventHeader
Posted by Mohammad Al-Turany on Thu, 15 May 2008 07:57:27 GMT
View Forum Message <> Reply to Message

Hi,

I added time stamps to the MCEventHeader (r 2772), to use this in the simulation macro:

```
CbmPrimaryGenerator* primGen = new CbmPrimaryGenerator();
primGen->SetEventTimeInterval ( minTime, maxTime) ;
```

the event time will be a random number between minTime and maxTime in nano secounds, it will also be added for each event, i.e: each event will have the time of all previous events+ its own one!

regards

Mohammad

Subject: Re: Time stamps in MCEventHeader
Posted by Tobias Stockmanns on Thu, 15 May 2008 08:10:45 GMT
View Forum Message <> Reply to Message

Very good!

What is the random generator you use?

I think it should be a random distribution.

Cheers,

Tobias

Subject: Re: Time stamps in MCEventHeader
Posted by Mohammad Al-Turany on Thu, 15 May 2008 08:24:30 GMT
View Forum Message <> Reply to Message

Hi,

I use:

TRandom::Uniform(min, max)

is this enough or should we change it! or should the user have the possibility to choose the

Random generator?

Mohammad

Subject: Re: Time stamps in MCEventHeader
Posted by Tobias Stockmanns on Fri, 16 May 2008 06:23:17 GMT
View Forum Message <> Reply to Message

Hi Mohammad,

it should be an exponential function with the mean time between events (100 ns) as parameter

---

Subject: Re: Time stamps in MCEventHeader
Posted by Mohammad Al-Turany on Fri, 16 May 2008 06:38:13 GMT
View Forum Message <> Reply to Message

Hi,

Can you explain me in more details what do you mean by this! do you mean the random distribution or the the time it self?

Mohammad

Subject: Re: Time stamps in MCEventHeader
Posted by Tobias Stockmanns on Fri, 16 May 2008 11:00:26 GMT
View Forum Message <> Reply to Message

Hi Mohammad,

the probability distribution of time intervals between two consecutive events is given by: P(t) = 1/meantime * exp (- 1/meantime * t).

The meantime should be a free parameter (typically 100 ns).

I hope this clarifies it.

Have a nice weekend

Tobias

Subject: Re: Time stamps in MCEventHeader
Posted by Mohammad Al-Turany on Mon, 19 May 2008 18:41:18 GMT
View Forum Message <> Reply to Message

Hi,

So, I added a new method SetEventMeanTime(Double_t) to the CbmPrimaryGenerator, setting this value will create a TF1 function:

TF1 *f1 = TF1("f1", "1/meanTime * Exp (-t/meanTime)", 0, meanTime*10)

Then the event time is taken randomly from this distribution (f1->GetRandom()) and will be added for each event!

Please test it and let me know!

regards

Mohammad

Subject: Re: Time stamps in MCEventHeader
Posted by Oscar Reinecke on Wed, 21 May 2008 13:34:04 GMT
View Forum Message <> Reply to Message

Hi Mohammad,

Or you could use TRandom::Exp(Double_t tau), that does exactly the same faster.

Greetings

Oscar

Subject: Re: Time stamps in MCEventHeader
Posted by StefanoSpataro on Wed, 21 May 2008 15:26:06 GMT
View Forum Message <> Reply to Message

Maybe one could just give a TF1 function as parameter, so that the user can set whichever distribution he likes.

Subject: Re: Time stamps in MCEventHeader
Posted by Mohammad Al-Turany on Fri, 23 May 2008 10:03:48 GMT
View Forum Message <> Reply to Message

Hallo Oscar,

You are right, it gives the same results! it is not faster but more simple! so now we have two methods:

1. SetEventMeanTime(Double_t)
2. SetEventTimeInterval (minTime, maxTime) ;

do we need a very general one as Stefano suggested !

regards

Mohammad