Subject: Uniform particle generation in solid angle
Posted by HosseinMoeini on Mon, 18 Apr 2011 07:07:16 GMT
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Dear all,

I was wondering if there's an easy way to generate particles along a unit 3-vector. As I noticed, the box generator in emc_complete.c doesn't do this. Apparently, it draws a random number within the specified ranges of theta and phi. What I need is something like G4RandomDirection function. I hit the problem when I roughly calculated the solid angle coverage of the full EMC to be about 92%. Whereas, the efficiency calculation using the box generator gives me something around 85% which indicates a bigger probability for particle generation at the poles (entrance and exit holes of the EMC)! Am I missing something here or there is other alternative to the box generator?

Best regards

Subject: Re: Uniform particle generation in solid angle
Posted by Dima Melnychuk on Mon, 18 Apr 2011 09:53:08 GMT
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Hi Hossein,

I suppose you should use the option
boxGen->SetCosTheta();
in box generator to have particles uniformly distributed in solid angle.

See the following post for details:

http://forum.gsi.de/index.php?t=tree&th=1318&start=0&rid=78&
amp;S=2fcdba1e0ae8f392cb61ca826979c23a#page_top

Dima

Subject: Re: Uniform particle generation in solid angle
Posted by HosseinMoeini on Mon, 18 Apr 2011 12:10:39 GMT
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Hi Dima,

Many thanks to you

Hossein