Subject: Particle reached max step number
Posted by Oleg on Thu, 18 Aug 2016 08:37:05 GMT
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Hello,

the alpha particle in the gas produce many electrons but not so many as it should be.
The error is:
*** Particle reached max step number (15000). ***
Where one can set the maximum step number, let say 30000?
And eventually - increase the step size?

Oleg.

Subject: Re: Particle reached max step number
Posted by Dmytro Kresan on Thu, 18 Aug 2016 08:53:10 GMT
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In your case with actar simulations, you need to adjust two files in gconfig directory:
g4GarfieldConfig.C and g4garfieldconfig.in

In first you can set maximum number of steps.
You can set only maximum step length. The minimum step size is controlled by energy cut for a specific particle / process, larger cut --> larger step size. Refer to Geant4 manual.

I saw also that you need to change garfield region in g4garfieldconfig.in to helium.

Best regards,
Dima

Subject: Re: Particle reached max step number
Posted by Oleg on Thu, 18 Aug 2016 09:07:56 GMT
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In g3GarfieldConfig.C:

```
  //set geant4 specific stuff
 geant4->SetMaxNStep(30000);  // default is 30000
```

In g4garfieldconfig.in:

```
# Garfield simulation configuration
/mcPhysics/fastSimulation/setModel garfieldModel
/mcPhysics/fastSimulation/setParticles gamma e- alpha
/mcPhysics/fastSimulation/setRegions helium
```

This all does not help.
The step limit 15000 is set somewhere else.

Oleg.

Subject: Re: Particle reached max step number
Posted by Dmytro Kresan on Thu, 18 Aug 2016 09:17:33 GMT
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Yes, you are right. Another try.

15000 limit is set in the file macros/r3b/actar/r3ball.C :

```
Int_t nSteps = -15000;
gMC->SetMaxNStep(nSteps);
```

In addition, concerning step size. In the same directory the file g4config2.in (currently) :

```
/run/setCut 1. mm
/run/setCutForRegion ArCO2 1. um
```

Best regards,
Dima

Subject: Re: Particle reached max step number
Posted by Oleg on Thu, 18 Aug 2016 09:25:53 GMT
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In macros/r3b/actar/r3ball.C
there are few lines:

```
// ------  Increase nb of step for CALO
Int_t nSteps = -15000;
gMC->SetMaxNStep(nSteps);
```

I was sure it is related to the calorimeter and not our detector. Is it?

In macros/r3b/actar/g4config2.in:

```
/run/setCut 1. mm
/run/setCutForRegion helium 100. um
```

Regards, Oleg.

Subject: Re: Particle reached max step number
Posted by Dmytro Kresan on Thu, 18 Aug 2016 09:36:09 GMT
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I do not know who has put this comment there, but it is meaningless. The limit is set globally.

The cuts you have to adjust by testing.

Best regards,
Dima