Subject: Re: Group velocity for Cherenkov photon propagation in G3/G4
Posted by Oliver Merle on Fri, 28 Jan 2011 18:39:44 GMT

Jochen Schwiening wrote on Fri, 28 January 2011 19:14Hi Oliver,

thanks for the check.
Are you plotting the average velocity per wavelength bin or the
velocity for each photon?

You know its friday evening?

I've created exactly one photon for a given wavelength in a fused silica radiator. Geant4 assigns the group velocity to the photon at creation time. This value will only be changed if the material changes (in that case the LUT of the new material will be used to lookup the new value).

So what I did is checking the computation of the group velocity in Geant4 itself. And this value is correct.

I don't know what happens in the VMC Layer above Geant4. You should be able to query the velocity of the photon without measuring time and distance (looks weird to me). If you compute the velocity from time and distance, there might also be an error in the distance computation or the assigned timestamps.

I would also switch Geant4 to high verbosity mode (at least for transportation), where you can check the tracklength manually.

I'm sorry, but I can't help you with VMC related stuff - I've never used it.

Good luck,
Oliver