Subject: Re: ROOT based track follower discussion.
Posted by Anonymous Poster on Fri, 19 Nov 2010 22:39:47 GMT
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Dear colleagues,

sorry for replying so late. The message had slipped by my attention, but now it came back.

I think that the development of ROOT track follower including material effects on the same level of quality as GEANE would be a great thing for the HEP community.
I indeed think that the Runge-Kutta implementation of RKTrackRep would be a great starting point. We of course did not invent this ourselves, but it was ported via several intermediate steps from Rene Brun's original implementation in GEANT3. The nice thing about it is the following: It internally uses a 7-dimensional coordinate system, defining the track just by (x,y,z,ax,ay,az,q/p) where the vector (ax,ay,az) is a unit vector in momentum direction. In this system there are no numerical poles. Extrapolations in all directions are possible without any trouble.

I do believe that the material treatment in RKTrackRep is not yet of the same quality as GEANE, and we frankly lack the manpower to push it further at the moment. It would be great if the Runge-Kutta core of RKTrackRep could come together with the material treatment ported from GEANE to become a ROOT class.

I would love to make a GENFIT track representation class based on that. It would be welcomed by many people, I'm sure.

I can offer help in understanding the RK code and am always open to discuss implementation details about this new class(es).

Cheers, Christian