

Dear Christian,

the warning come from the routine TRPRFN, we do not use TRPROP because we have the flag E (Exact tracking) in the interface. ERPROP uses the same message both for TRPROP and TRPFN. In this routine eqs. A1-A20 from Strandlie and Wittek, NIM A 566(2006)687 are coded and calculated.

These formulae refer to the propagation of the error matrix from one transverse (SC) system to another during tracking.

Some of these formulae become singular when $\cos \lambda$ (dip angle) is equal to zero, because it appears on the denominator.

This happens when the particle is exactly along the z-axis of the Master system, because in this case the ϕ angle is undefined. Since the equations are meaningful also for very small $\cos \lambda$ values, in GENAE only the conditions $\cos \lambda = 0$ EXACTLY is flagged and no actions are triggered, apart from the printed message.

In this case perhaps one could set to zero all the derivatives involving ϕ in the jacobian and skip the message.

A lot of messages of this type could happen when you send the particles exactly along the z-axis. In all the other cases this should happen very rarely! Even more strange is the dependence of the error on the 32-64 bit configuration.

Therefore, to understand better what's going on, I would ask:

- 1) do you send particles along the Z- axis in your generator?
- 2) what is the percentage of messages you have on the whole in a typical production?
- 3) In a 32 bit configuration you have few messages. Are the results reliable with no artifacts?

Thank you in advance
Alberto
