Subject: Re: PANDA ToF Task Force Questions Posted by Vladimir Vikhrov on Wed, 08 Jul 2009 11:49:33 GMT View Forum Message <> Reply to Message

Dear colleague,

concerning the implication of barrel TOF on PANDA EMC i would propose to make a plot radiation length of all sub-detectors (MVD, STT/TPC, barrel TOF, barrel DIRC) until EMC versus polar angle. The similar plot was already done for beam & target pipes and MVD (look for example Rene Jakel report on collab. meeting 11.12.2007). Barrel TOF could be included in 3 options:

1) RPC (X/X0 ~6% as declared, but overlapping and realistic material budget should be taken into account)

2) Scintillator TOF with constant thickness in Z (let it be 4 cm)

3) so called "tapered" scintillator, with ~constant X/X0 versus Z

During the last collab. meeting Bertram Kopf presented the result of his MC simulation for the second option. He didn't found strong theta dependence in losses of efficiency of pi0 reconstruction and S/B ratio (pp. 10&11 of his report). This is what i would like to understand. For the particles coming from the interaction point (it is true for the gammas from pi0 decay) radiation length depends on polar angle - if at theta=90deg barrel TOF has a X/X0=10% then at 30deg it will be 20% (two times!) and at 20deg will be 29%. But we see 2% drop in efficiency loss at 20deg only. If somebody understand this?

I think we need to continue our MC simulation to understand how barrel TOF material can affect on EMC versus polar angle.

Best regards from St.Petersburg, Vladimir

Page 1 of 1 ---- Generated from GSI Forum