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Subject: Re: Try with no PID

Posted by [Klaus Götzen](#) on Wed, 27 Sep 2017 08:14:10 GMT

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Hi Alex,

maybe there is some misunderstanding in the keywords 'KaonAllPlus', 'PionAllPlus', etc. What happens e.g. for 'KaonAllPlus' is, that the energy components of the 4-vectors of all positively charged tracks (pi+ and K+ in your case) are set with the kaon mass hypothesis to  $\sqrt{m_K^2 + p^2}$ . So your lists 'plus1' and 'plus2' contain exactly the same (namely all positive) tracks, in the former with pion and in the latter with kaon mass set.

For the two positive and two negative tracks per event, you get then 4 t+ t- combinations (as you already wrote). The kinematic limit of  $m_K + m_{\pi}$  in Firstplot.png is just the result of the fact, that one track in each combination has kaon mass, the other one pion mass, so the smallest possible invariant mass is  $m_K + m_{\pi}$  by construction.

Concerning your approach with 'AllPlus' and 'AllMinus': Here, all tracks are assigned the default mass hypo, which is pion mass. Therefore the phase space limit is  $2m_{\pi}$ .

I hope this explanation clarifies things a bit.

Best regards,  
Klaus

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