Updates on activities.

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March 4, 2014

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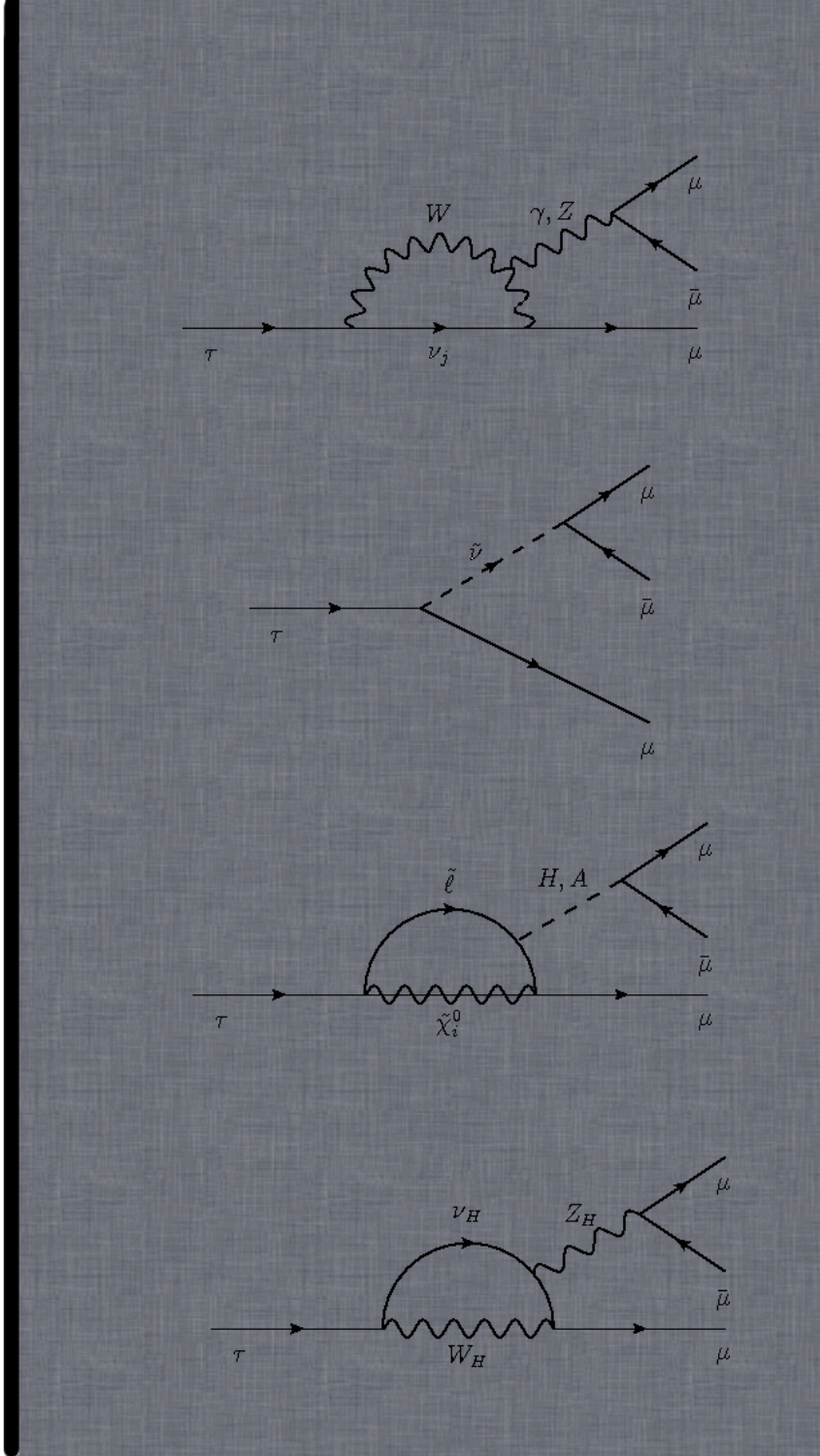
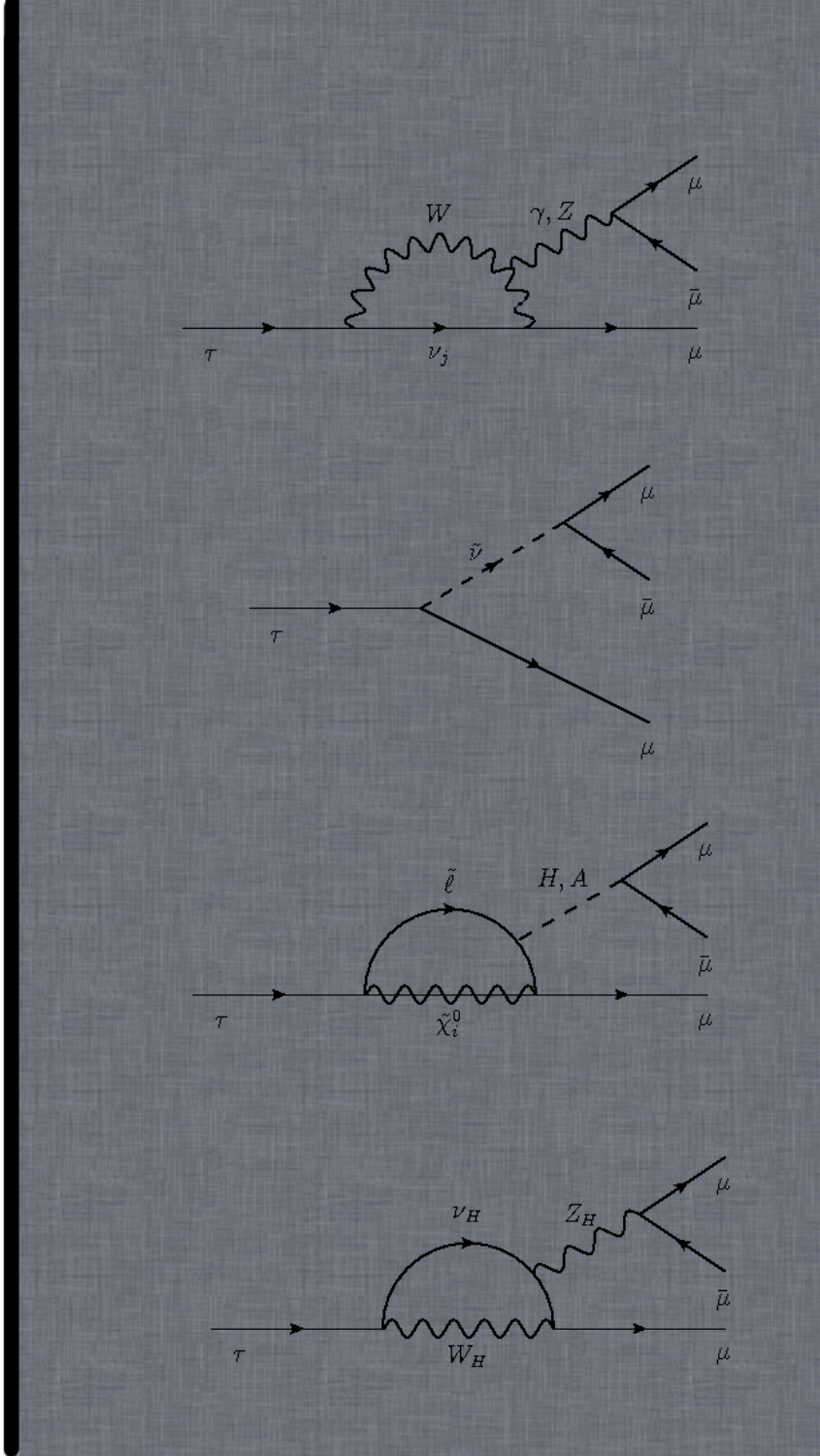


$\mathrm{B}^0 \to \mathrm{K}^* \mu\mu$

$\tau \to \mu\mu\mu$



Optimising the BDT cut for $\mathrm{B}^0 \to \mathrm{K}^*\mu\mu$

Procedure(nightmare, looks simple but took me a lot of FUCKs):

1. For each of the BDT cut(scan the region from $(0, 0.3)$ fir the $\mathrm{B}^0 \to \mathrm{J}/\psi\mathrm{K}^*$.
2. Fix the PDF for the signal and fit *PBzero* $\to \mathrm{K}^*\mu\mu$ in a given q^2 bin.
3. From the fit we have number of signal and bck events.
4. Fit chebyshev polynomials for bck in the side bands.
5. Simulate 1000 toys of signal and bck using N_{sing}, N_{bck} from the fit. PDF for signal is taken SM, bck is simulated accordingly to chebyshev.
6. Calculate the Movement of the signal:

$$M_{sig} = \frac{(n_{sig} + n_{bck})M_{tot}}{n_{sig}} - \frac{n_{bck}M_{bck}}{n_{sig}} \tag{1}$$

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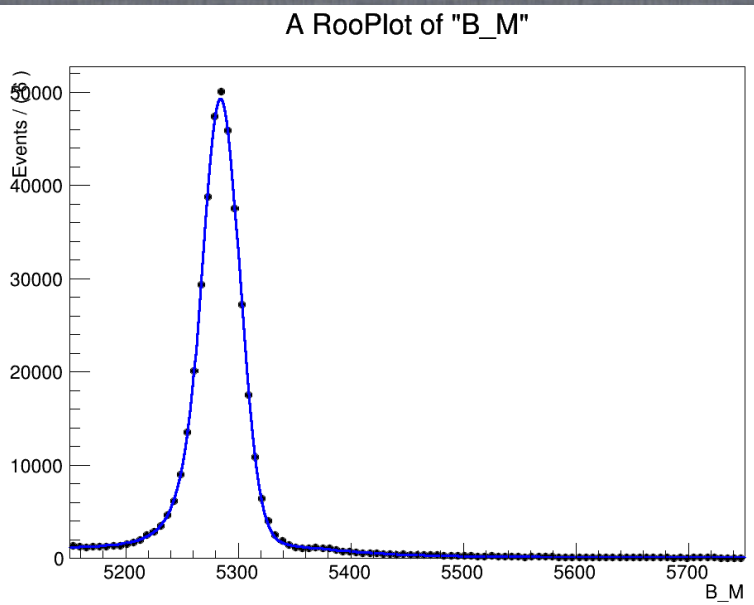
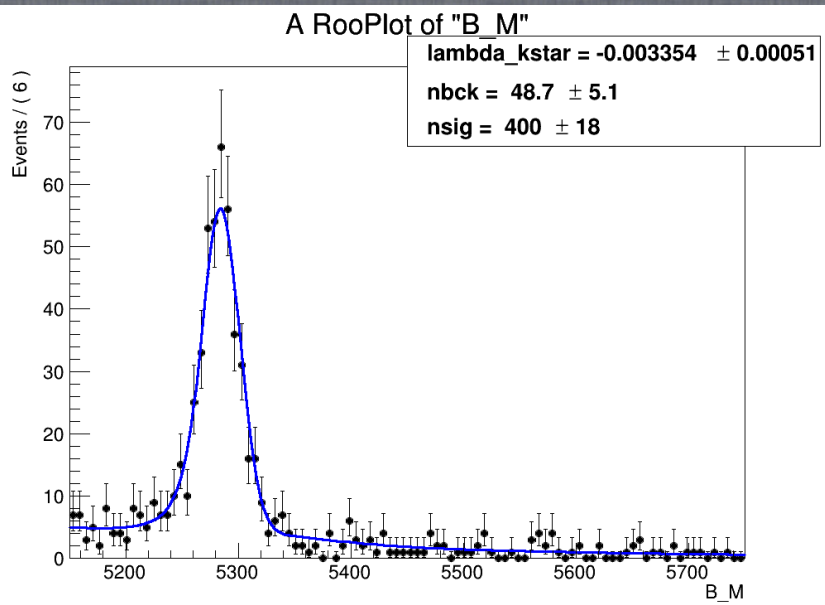
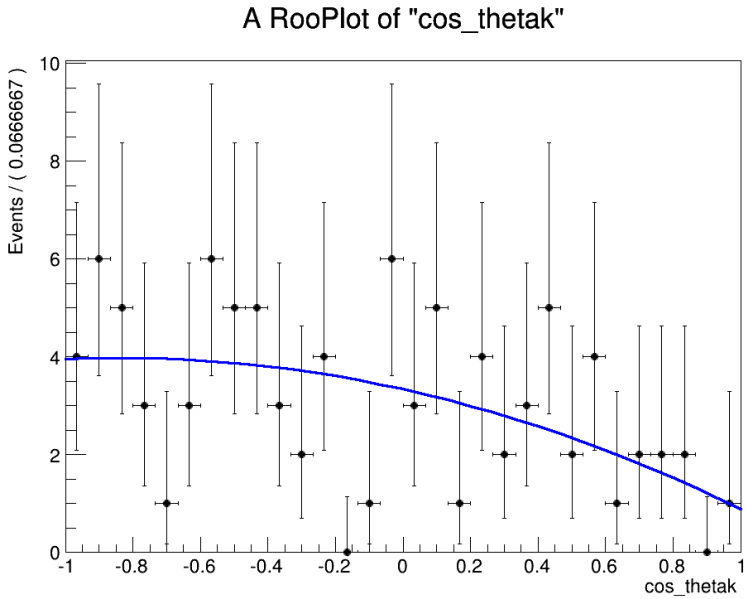
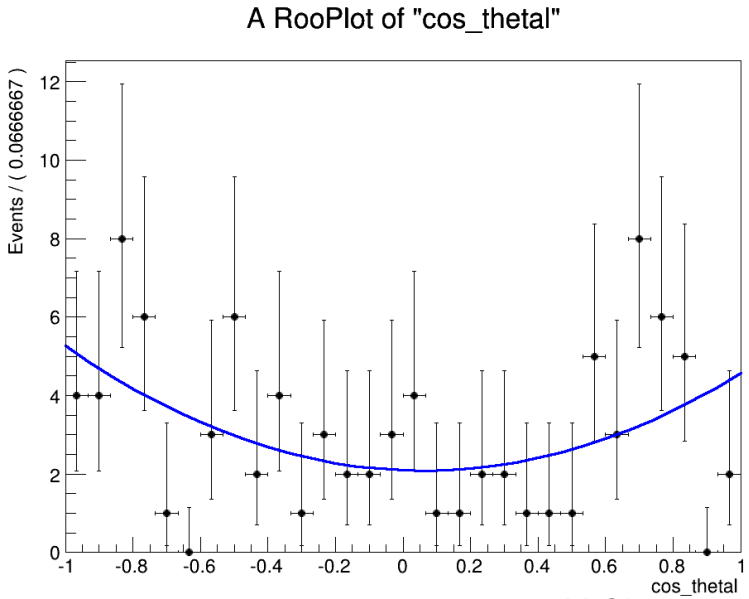
q^2 is in 0.1, 0.98, ex. BDT 0.18









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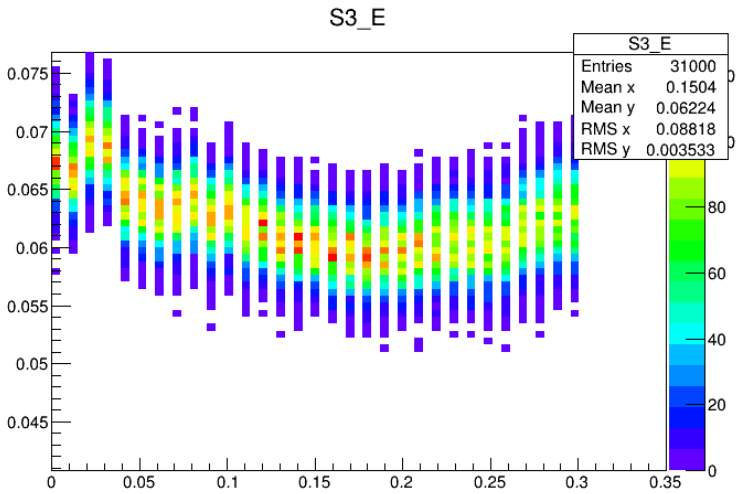
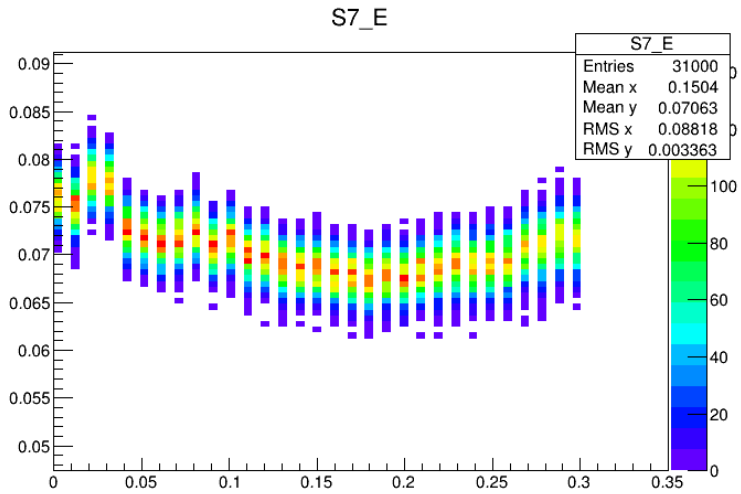
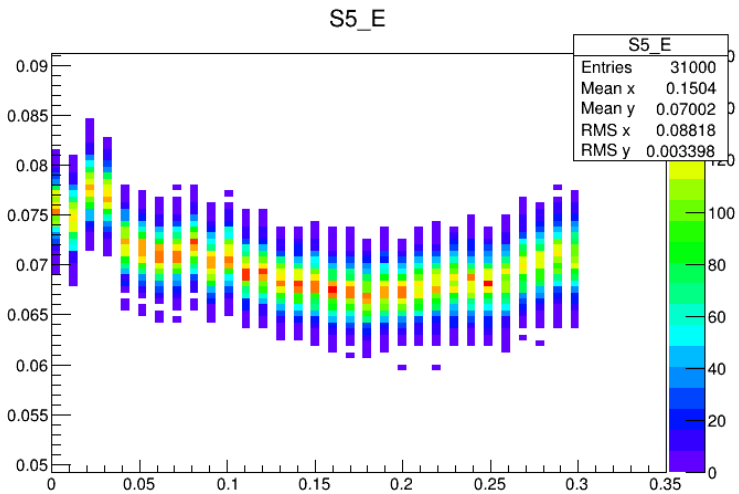
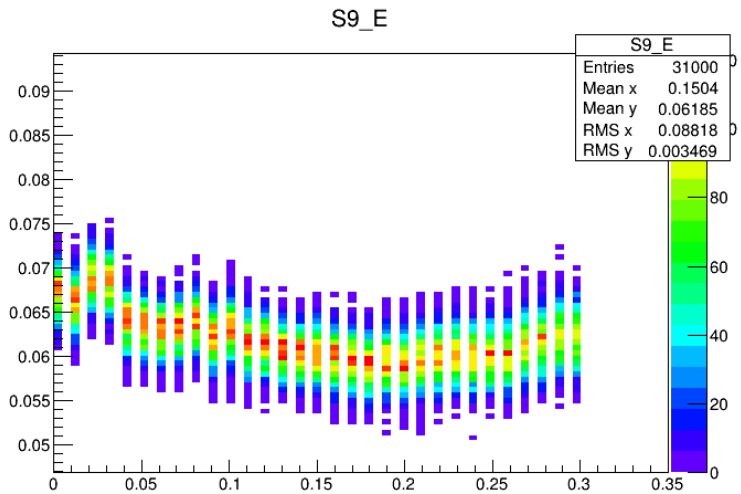
Results









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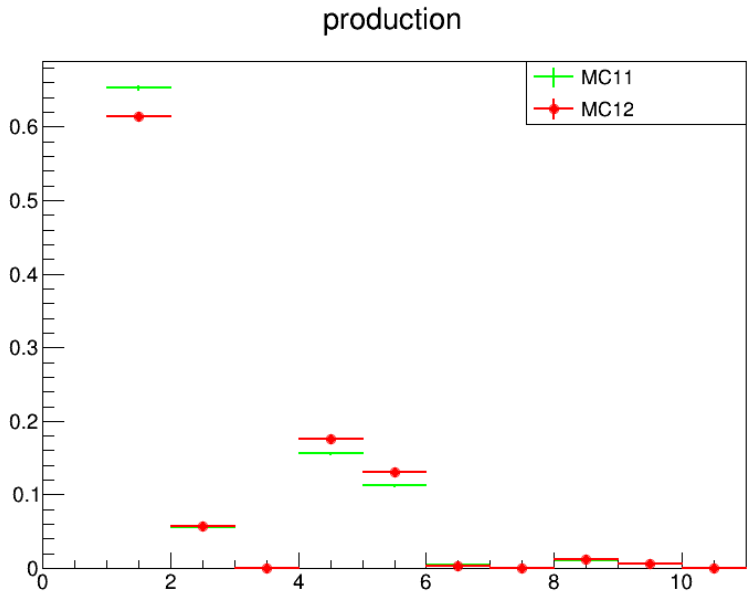
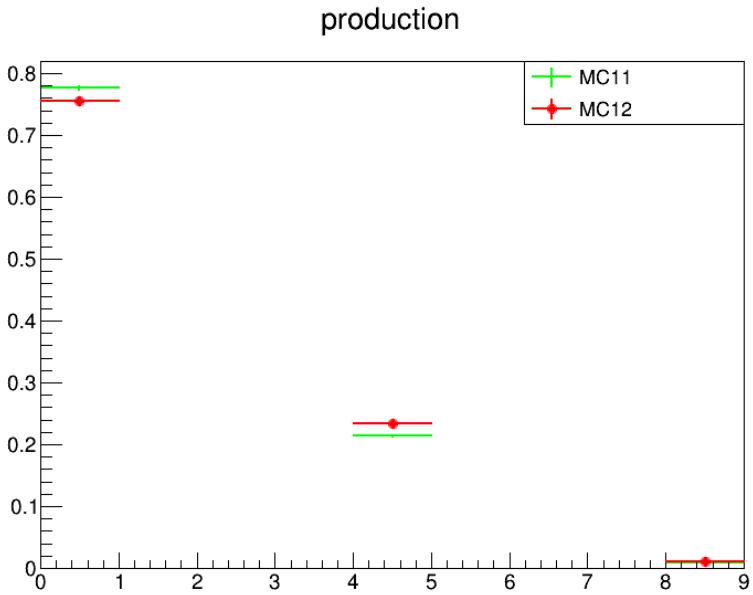
$\tau \to \mu\mu\mu$ reminder

- We had problems to get back 2011 expected limits, which stooped us from going to Moriond.
- After lots of debugging I found where the hell we went wrong.



$\tau \to \mu\mu\mu$



$\mathrm{D_s} \to \phi(\mu\mu)\pi$

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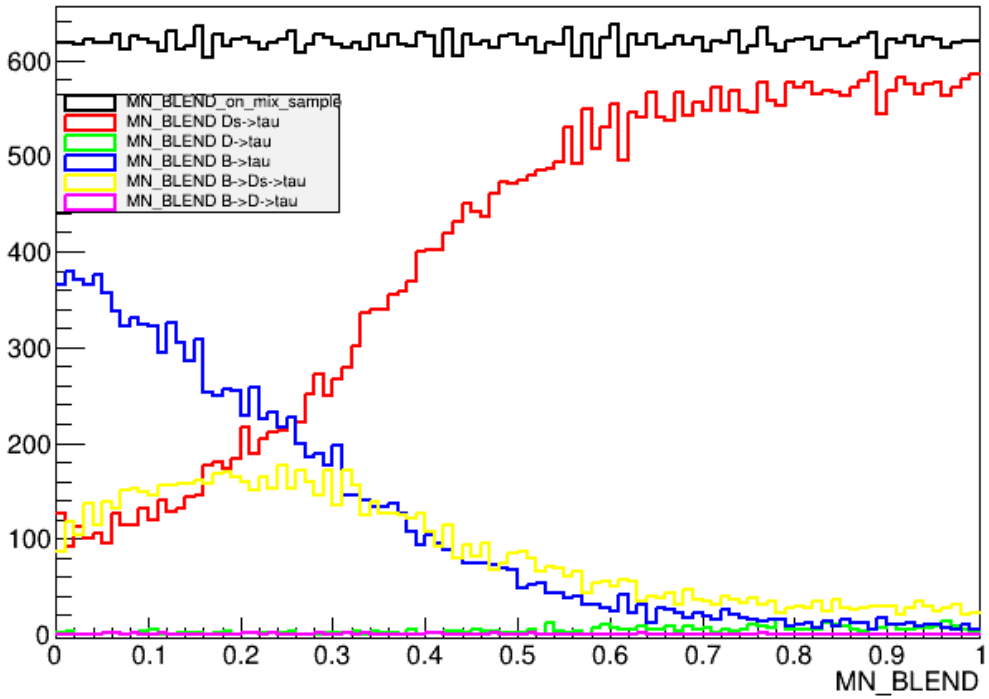
$\tau \to \mu\mu\mu$



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