$\tau \to 3\mu$ in Magnet Stations

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τ production

- τ's in LHCb come from five main sources:

Mode	7 TeV	8 TeV
Prompt $D_s \to \tau$	$71.1 \pm 3.0\,\%$	$72.4 \pm 2.7\,\%$
Prompt $D^+ \to \tau$	$4.1 \pm 0.8\,\%$	$4.2 \pm 0.7\,\%$
Non-prompt $D_s \to \tau$	$9.0 \pm 2.0\,\%$	$8.5 \pm 1.7\,\%$
Non-prompt $D^+ \to \tau$	$0.18 \pm 0.04\,\%$	$0.17 \pm 0.04\,\%$
$X_b \to \tau$	$15.5 \pm 2.7\,\%$	$14.7 \pm 2.3\,\%$

$\Rightarrow$ For this study I simulated the τ's coming from c

$\Rightarrow$ For now limited statistics simulated ($\mathcal{O}(100)$).

Preliminary numbers

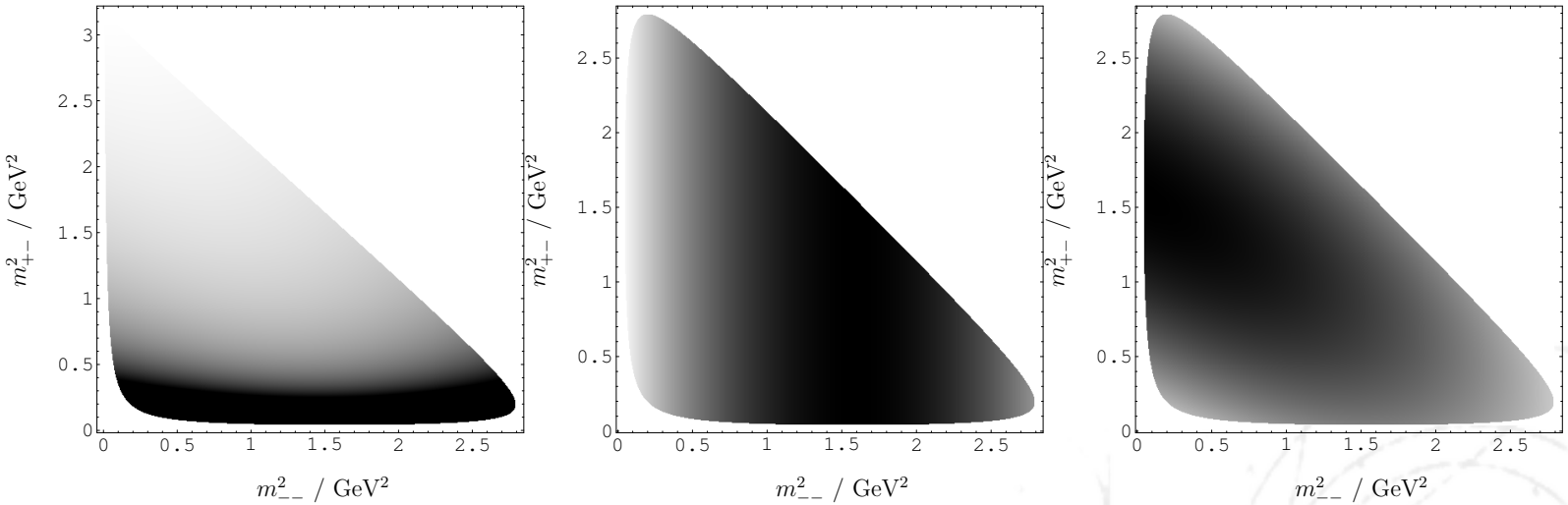
⇛ Magnet station efficiency: 2.01%.

⇛ Cross check:

- I have check and we have other particles form other events.
- Each event in other part of LHCb has the $\tau \longrightarrow 3\mu$ particles.

⇛ Other assumptions:

- τ are decayed with PHSP.



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⇛ Further cross-checks:

- Simulate higher statistics.
- Add τ form b.
- Plot the τ momentum and see if this makes sense compared the π form D^*.

Backup