
Summary of the activity of the analysis: Ds(2317), Ds(2460), Ds(2535)

New trunk rev. 25545

- problems with the GEM geometry were shown since my last update, rev 25375
- loss of efficiency in rev 25375 (from 35% to 19%) due to geometry bugs
- the problem was fixed recently from Stefano (suggestion: use rev 25545)
- the new submitted jobs show again good results, in agreement with the ones @ the last collaboration meeting
- full simulations are used in my work: fast sim does not reproduce correctly the vertex resolution. This can affect the background studies and selection
- inclusive and exclusive studies on D_{sJ} mesons are ongoing
- DPM simulations started. To be repeated in the new rev. 25545, for consistency

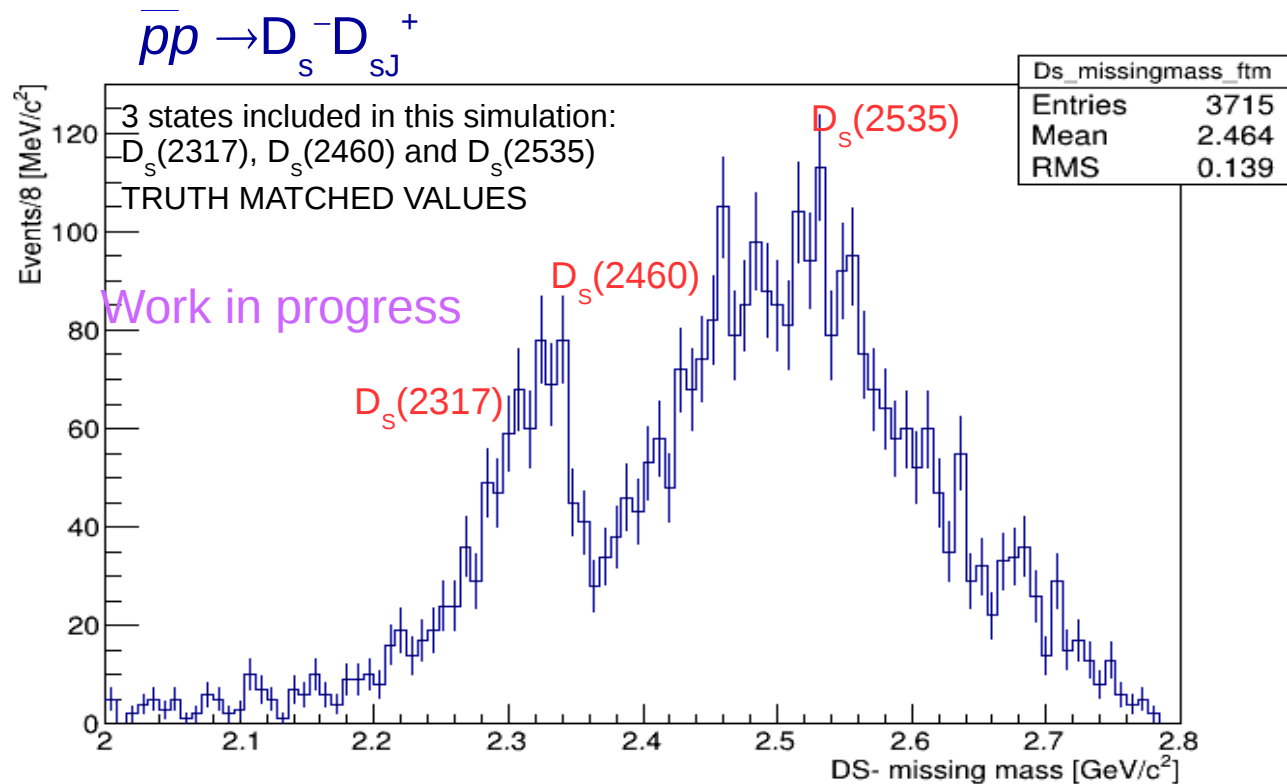
- Inclusive studies: $D_s(2317)$, $D_s(2460)$ and $D_s(2535)$ are in the same dec file .
Not all decays are allowed....

Decay Channel	$D_{sJ}^*(2317)^+$	$D_{sJ}(2460)^+$
$D_s^+ \pi^0$	Seen	Forbidden
$D_s^+ \gamma$	Forbidden	Seen
$D_s^+ \pi^0 \gamma$ (a)	Allowed	Allowed
$D_s^*(2112)^+ \pi^0$	Forbidden	Seen
$D_{sJ}^*(2317)^+ \gamma$	—	Allowed
$D_s^+ \pi^0 \pi^0$	Forbidden	Allowed
$D_s^+ \gamma \gamma$ (a)	Allowed	Allowed
$D_s^*(2112)^+ \gamma$	Allowed	Allowed
$D_s^+ \pi^+ \pi^-$	Forbidden	Seen

(a) Non-resonant only

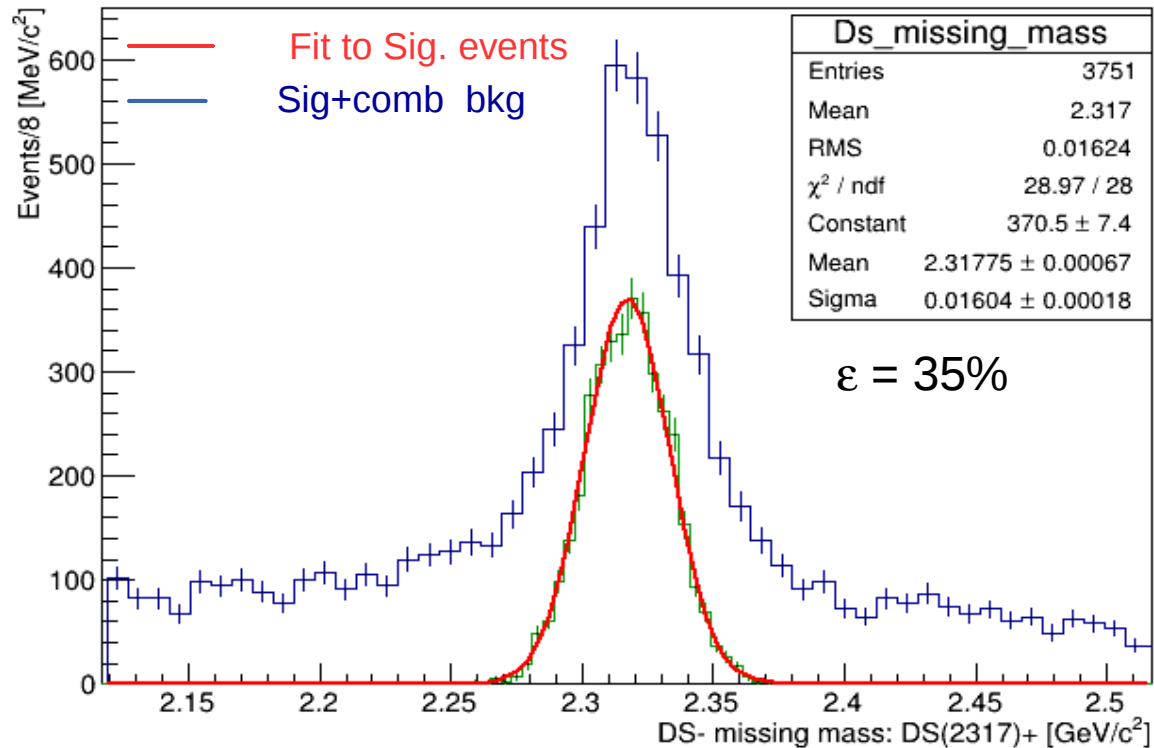
What we learned from the other experiments? $D_s(2460)$ cannot be 0^+
All other options are still opened...

Study performed on 10 000 generated events, rev 25375.
 It must be repeated in rev. 25545: jobs are ongoing....



$D_s(2317)$ is evident: not so good for $D_s(2460)$ and $D_s(2535)$:
 we hope to get improvements in the future. Not clear if this study
 will be possible due to the high level of bkg expected for this channels.
 Missing mass of D_s^- is used to build this plot

- Exclusive study of $D_s(2317)$, for the measure of the width, BF, ...
- Same for the study of $D_s(2460)$ and $D_s(2536)$



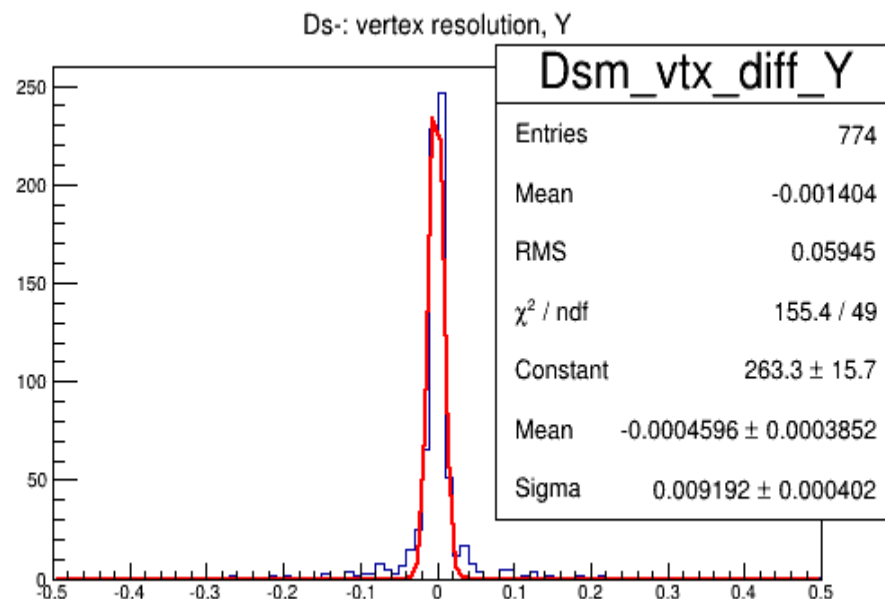
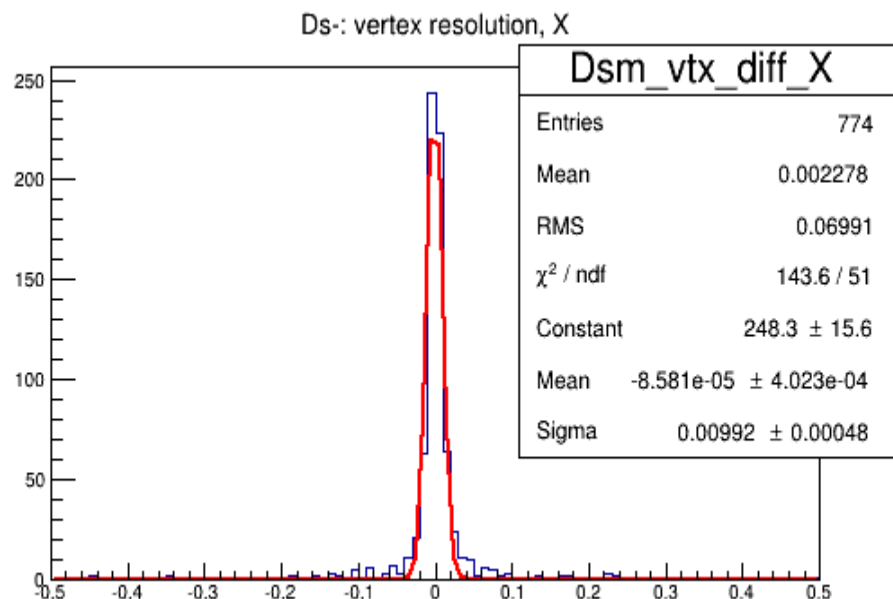
Scan of the mass: study is ongoing. Not ready for the today meeting.

Soon an update will be provided

DPM studies: the D_s are not in the list of the DPM particles. A study with pp to $4K$, 2π , $2-3-4\gamma$ are ongoing.

Optimization of selection cuts for the event filter are under study (full simulation)

- Vertex resolution of Ds- in X, Y, with the new study in rev 25545.



Vertex resolution $\sim 90 \mu\text{m}$ \rightarrow consistency with results shown @ last meeting

- We want to reconstruct Ds(2317), Ds(2460), Ds(2535):
 D_s^- is mass constraint; to the others the vtx fit is applied.
- Neutral reconstruction:
 need to update the PID-correlator suggested from Stefano, today, and try again.
 $\gamma\gamma$ mass constraint fit looks working, now (Donghee)