

Analysis of $H \rightarrow WW^*$

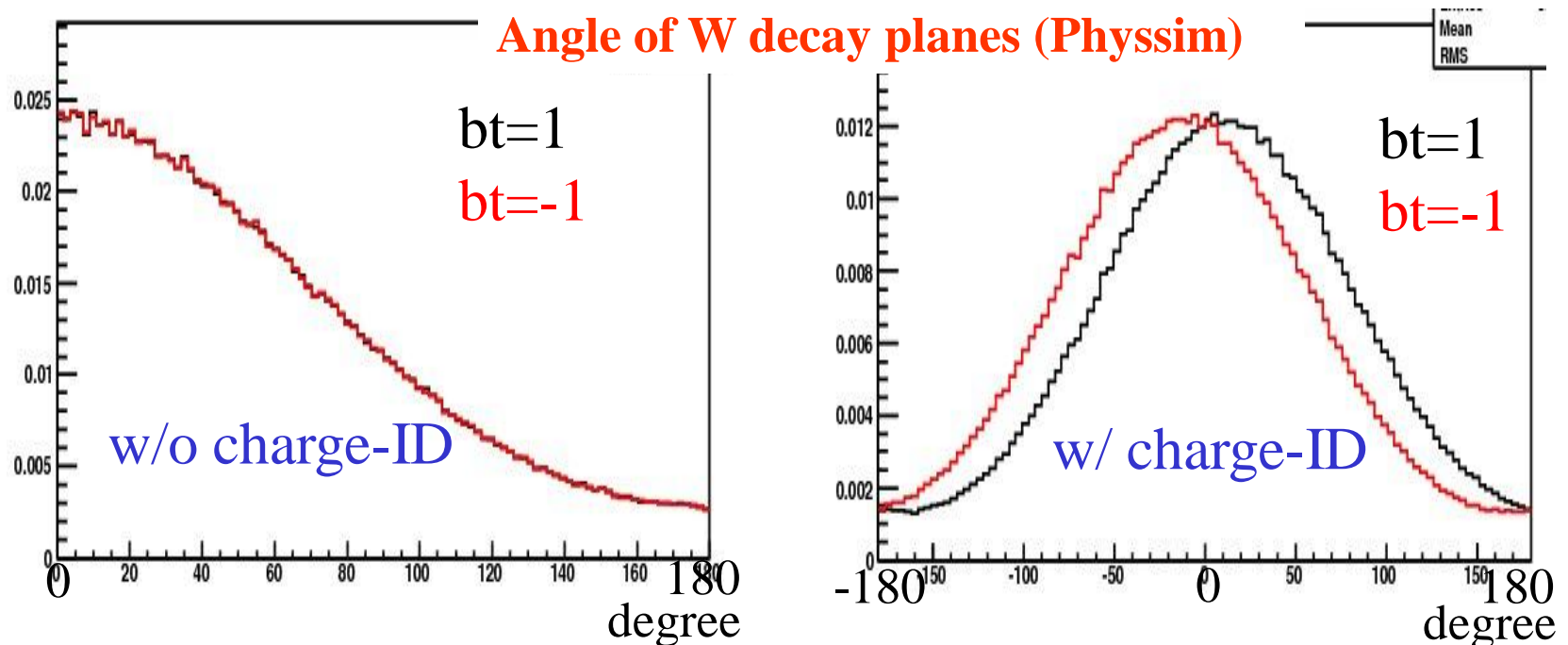
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Decay plane angle with charge-ID

The sign of $b\tilde{t}$ can be identified with the charge-ID of jets.

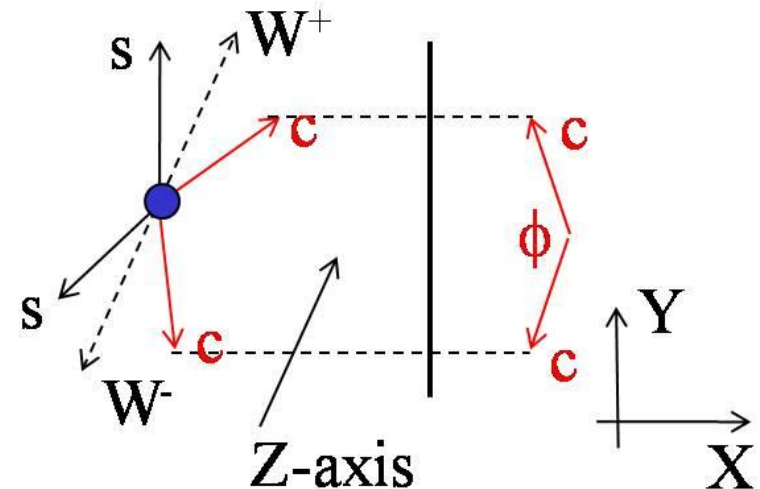
- Efficiency of charge-ID for c-jets: 14.6% (45GeV jets)
- 3.2% of c-jets are identified as opposite charge.

→ The contour plot for a v.s. $b\tilde{t}$ was made with these assumption.



Contour plot with charge-ID

- It is required that at least one jet can be identified the charge.
 - ID efficiency: $2p(1-p) + p^2$ ($p: 0.146$) $\rightarrow 27\%$
- The efficiency of charge-ID for backgrounds was assumed the same as that for the signal (27%).
- The effect of the mis-identification of jet charge (3.2%) was ignored.
- The angular distributions of the decay planes were made by jets identified their charge (27%) and not identified one (63%).

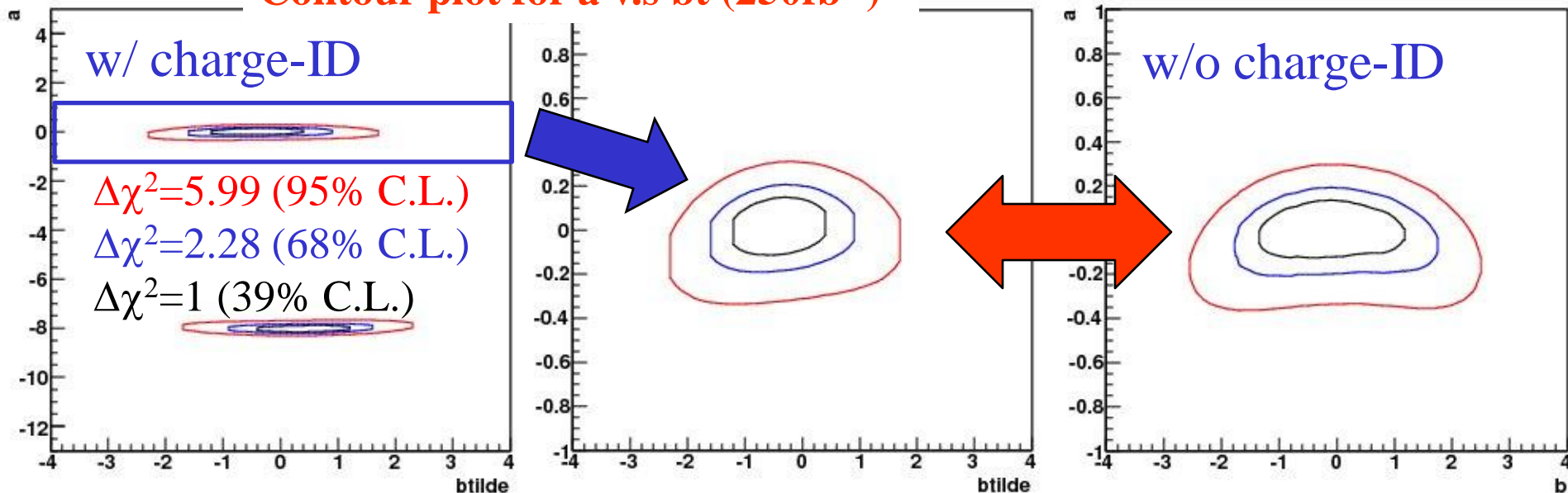


Contour plots with charge-ID (250 fb⁻¹)

The contour plot for a v.s. btilde was made with charge-ID for 250 fb⁻¹.

- It is assumed that the background contamination can be evaluated although it is difficult for 250fb⁻¹ by fitting the Higgs mass distribution
- The weak linear dependence of a on btilde can be seen.

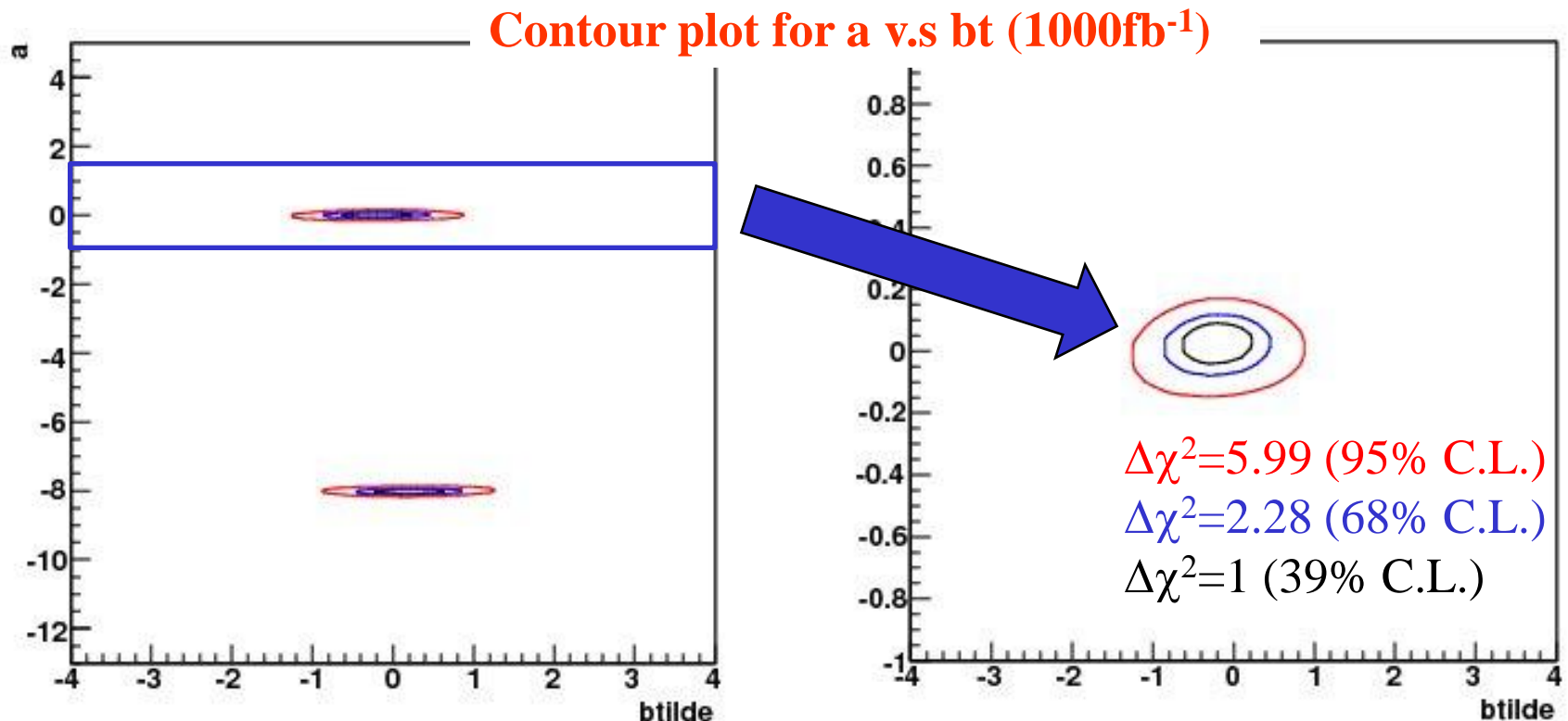
Contour plot for a v.s. bt (250fb⁻¹)



Contour plots with charge-ID (1 ab^{-1})

The contour plot for a $v.s.$ $b\tilde{t}$ was made with charge-ID for 1000 fb^{-1} .

- At this luminosity, the background in the angular distribution of the decay planes made by jets identified their charge can be evaluated by fitting the Higgs mass distributions.



Contour plots with charge-ID (250 fb⁻¹)

The constraint power of plane angle distributions w/ and w/o jets identified their charge was checked.

- with jets identified their charge: 27% (w/o...: 63%)
- The distribution with jets identified their charge give stronger constraint.

