

## High Energy Physics - Phenomenology

# Using single top rapidity to measure $V_{td}$ , $V_{ts}$ , $V_{tb}$ at hadron colliders

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Single top production processes are usually regarded as the ones in which  $V_{tb}$  can be directly measured at hadron colliders. We show that the analysis of the single top rapidity distribution in t-channel and tW production can also set direct limits on  $V_{td}$ . At LHC with  $10 \text{ fb}^{-1}$  at 14 TeV the combined limits on  $V_{td}$  may be reduced by almost a factor of two when the top rapidity distribution is used. This also implies that the limits on  $V_{tb}$  can also be reduced by 15%, since both parameters as well as  $V_{ts}$  must be simultaneously obtained from a global fit to data. At Tevatron the full exploitation of this distribution would require very high statistics. Still, with the luminosity achievable in the near future the analysis of the single top rapidity might improve the limits on  $V_{td}$  and  $V_{tb}$  up to 10%.

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