## t' (4th Generation) Quark, Searches for

## MASS LIMITS for t' (4<sup>th</sup> Generation) Quark or Hadron in $p\bar{p}$ Collisions

VALUE (GeV)	CL%	DOCUMENT ID	TECN	COMMENT
>256	95	1,2 AALTONEN	08н CDF	pp at 1.96 GeV

<sup>&</sup>lt;sup>1</sup> Searches for pair production of a new heavy top-like quark t' decaying to a W boson and another quark by fitting the observed spectrum of total transverse energy and reconstructed t' mass in the lepton + jets events.

## REFERENCES FOR Searches for (Fourth Generation) t' Quark

AALTONEN 08H PRL 100 161803 T. Aaltonen *et al.* (CDF Collab.) HUANG 08 PR D77 037302 P.Q. Hung, M. Sher (UVA, WILL)

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 $<sup>^2</sup>$  HUANG 08 reexamined the t' mass lower bound of 256 GeV obtained in AALTONEN 08H that assumes B( $b' \to q Z$ ) = 1 for q=u, c which does not hold when  $m_{b'} < m_{t'} - m_W$  or the mixing  $\sin^2(\theta_{b\,t'})$  is so tiny that the decay occurs outside of the vertex detector. Fig. 1 gives that lower bound on  $m_{t'}$  in the plane of  $\sin^2(\theta_{b\,t'})$  and  $m_{b'}$ .