

Technicolor

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MASS LIMITS for Resonances in Models of Dynamical Electroweak Symmetry Breaking

VALUE (GeV)	CL%	DOCUMENT ID	TECN	COMMENT
● ● ● We do not use the following data for averages, fits, limits, etc. ● ● ●				
>600	95	¹ AFFOLDER	00F CDF	color-singlet techni- ρ , $\rho_T \rightarrow W\pi_T, 2\pi_T$
		² AFFOLDER	00K CDF	color-octet techni- ρ , $\rho_{T8} \rightarrow 2\pi_{LQ}$
>480	95	³ AFFOLDER	00L CDF	top-color Z'
none 350–440	95	⁴ ABE	99F CDF	color-octet techni- ρ , $\rho_{T8} \rightarrow \bar{b}b$
>465	95	⁵ ABE	99H CDF	color-octet techni- ρ , $\rho_{T8} \rightarrow 2\pi_{LQ}$
		⁶ ABE	99N CDF	techni- ω , $\omega_T \rightarrow \gamma\bar{b}b$
none 260–480	95	⁷ ABE	97G CDF	color-octet techni- ρ , $\rho_{T8} \rightarrow 2j$ ets

¹ AFFOLDER 00F search for ρ_T decaying into $W\pi_T$ or $\pi_T\pi_T$ with $W \rightarrow \ell\nu$ and $\pi_T \rightarrow \bar{b}b, \bar{b}c$. See Fig. 1 in the above Note on “Dynamical Electroweak Symmetry Breaking” for the exclusion plot in the $M_{\rho_T} - M_{\pi_T}$ plane.

² AFFOLDER 00K search for the ρ_{T8} decaying into $\pi_{LQ}\pi_{LQ}$ with $\pi_{LQ} \rightarrow b\nu$. For $\pi_{LQ} \rightarrow c\nu$, the limit is $M_{\rho_{T8}} > 510$ GeV. See their Fig. 2 and Fig. 3 for the exclusion plot in the $M_{\rho_{T8}} - M_{\pi_{LQ}}$ plane.

³ AFFOLDER 00L search for top-color Z'_{top} decaying into $\bar{t}t$. The quoted limit is for Z'_{top} with decay width $\Gamma = 0.012 M_{Z'}$. For $\Gamma = 0.04 M_{Z'}$, the limit becomes 780 GeV.

⁴ ABE 99F search for a new particle X decaying into $b\bar{b}$ in $p\bar{p}$ collisions at $E_{\text{cm}} = 1.8$ TeV. See Fig. 7 in the above Note on “Dynamical Electroweak Symmetry Breaking” for the upper limit on $\sigma(p\bar{p} \rightarrow X) \times B(X \rightarrow b\bar{b})$. ABE 99F also exclude top gluons of width $\Gamma = 0.3M$ in the mass interval $280 < M < 670$ GeV, of width $\Gamma = 0.5M$ in the mass interval $340 < M < 640$ GeV, and of width $\Gamma = 0.7M$ in the mass interval $375 < M < 560$ GeV.

⁵ ABE 99H search for the color-octet techni- ρ decaying into a pair of color-triplet technipions which subsequently decay into $\tau + \text{jet}$. See Fig. 6 in the above Note on “Dynamical Electroweak Symmetry Breaking” for the exclusion plot in the $M_{\rho_{T8}} - M_{\pi_{LQ}}$ plane.

⁶ ABE 99N search for the techni- ω decaying into $\gamma\pi_T$. The technipion is assumed to decay $\pi_T \rightarrow b\bar{b}$. See Fig. 2 in the above Note on “Dynamical Electroweak Symmetry Breaking” for the exclusion plot in the $M_{\omega_T} - M_{\pi_T}$ plane.

⁷ ABE 97G search for a new particle X decaying into dijets in $p\bar{p}$ collisions at $E_{\text{cm}} = 1.8$ TeV. See Fig. 5 in the above Note on “Dynamical Electroweak Symmetry Breaking” for the upper limit on $\sigma(p\bar{p} \rightarrow X) \times B(X \rightarrow 2j)$.

REFERENCES FOR Technicolor

AFFOLDER	00F	PRL 84 1110	T. Affolder <i>et al.</i>	(CDF Collab.)
AFFOLDER	00K	PRL 85 2056	T. Affolder <i>et al.</i>	(CDF Collab.)
AFFOLDER	00L	PRL 85 2062	T. Affolder <i>et al.</i>	(CDF Collab.)
ABE	99F	PRL 82 2038	F. Abe <i>et al.</i>	(CDF Collab.)
ABE	99H	PRL 82 3206	F. Abe <i>et al.</i>	(CDF Collab.)
ABE	99N	PRL 83 3124	F. Abe <i>et al.</i>	(CDF Collab.)
ABE	97G	PR D55 R5263	F. Abe <i>et al.</i>	(CDF Collab.)
