

ATLAS Exotics Searches* - 95% CL Lower Limits (Status: LHCC, Sep 2012)

ATLAS
Preliminary

$$\int L dt = (1.0 - 6.1) \text{ fb}^{-1}$$

$$\sqrt{s} = 7, 8 \text{ TeV}$$

Extra dimensions

CI

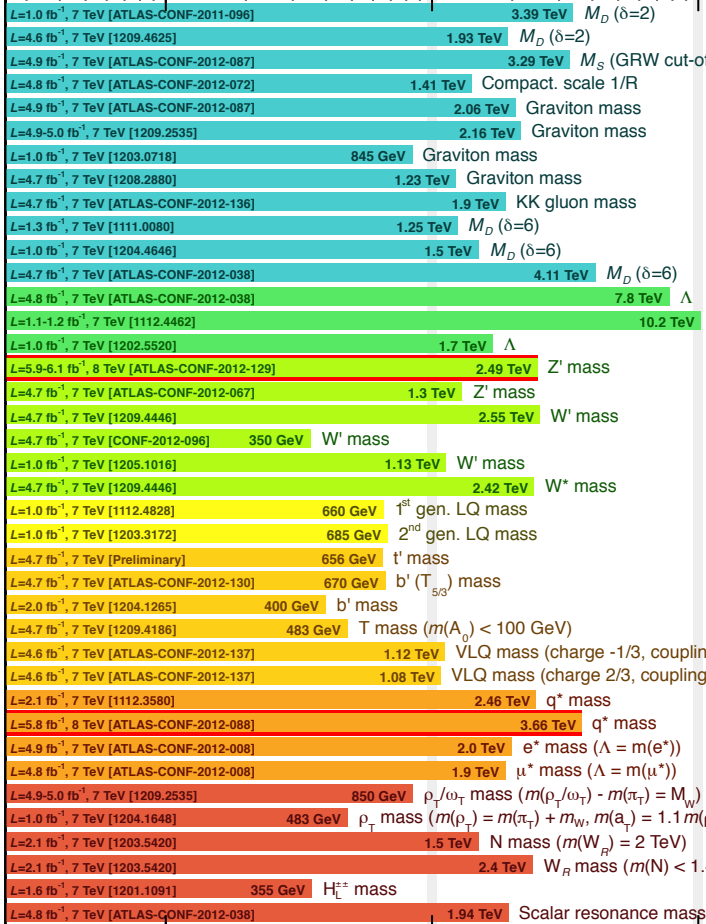
V'

New quarks : LQ

Excited : fermions

Other

Large ED (ADD) : monojet + $E_{T, \text{miss}}$
 Large ED (ADD) : monophoton + $E_{T, \text{miss}}$
 Large ED (ADD) : diphoton, $m_{\gamma\gamma}$
 UED : diphoton + $E_{T, \text{miss}}$
 RS1 with $k/M_{\text{Pl}} = 0.1$: diphoton, $m_{\gamma\gamma}$
 RS1 with $k/M_{\text{Pl}} = 0.1$: dilepton, $m_{\ell\ell}$
 RS1 with $k/M_{\text{Pl}} = 0.1$: ZZ resonance, $m_{\text{full}} / \text{ijij}$
 RS1 with $k/M_{\text{Pl}} = 0.1$: WW resonance, $m_{T, \text{lvlv}}$
 RS with $\text{BR}(g \rightarrow t\bar{t}) = 0.925$: $t\bar{t} \rightarrow l\bar{l}$ jets, m_{KK}
 ADD BH ($M_{\text{TH}}/M_D=3$) : SS dimuon, $N_{\text{ch. part.}}$
 ADD BH ($M_{\text{TH}}/M_D=3$) : leptons + jets, Σp
 Quantum black hole : dijet, $F(m_{\text{pl}})$
 qqqq contact interaction : $\chi(m)$
 qqll CI : ee, $\mu\mu$ combined, $m_{\ell\ell}$
 uutt CI : SS dilepton + jets + $E_{T, \text{miss}}$
 Z' (SSM) : $m_{ee/\mu\mu}$
 Z' (SSM) : $m_{\tau\tau}$
 W' (SSM) : $m_{T, e/\mu}$
 W' ($\rightarrow tq, g_s=1$) : m_{tq}
 W' ($\rightarrow tb, \text{SSM}$) : m_{tb}
 W* : $m_{T, e/\mu}$
 Scalar LQ pairs ($\beta=1$) : kin. vars. in eejj, evjj
 Scalar LQ pairs ($\beta=1$) : kin. vars. in $\mu\mu jj, \mu\nu jj$
 4th generation : $t\bar{t}' \rightarrow WbWb$
 4th generation : $b\bar{b}'(T_{1/3}^{1/3}) \rightarrow WtWt$
 New quark b' : $b\bar{b}' \rightarrow Zb+X$, m_{Zb}
 Top partner : $T\bar{T} \rightarrow t\bar{t} + A_0 A_0$ (dilepton), M_{T_2}
 Vector-like quark : CC, $m_{\ell\nu q}$
 Vector-like quark : NC, $m_{\ell\nu q}$
 Excited quarks : γ -jet resonance, $m_{\gamma\text{jet}}$
 Excited quarks : dijet resonance, m_{jj}
 Excited electron : e- γ resonance, $m_{e\gamma}$
 Excited muon : μ - γ resonance, $m_{\mu\gamma}$
 Techni-hadrons (LSTC) : dilepton, $m_{ee/\mu\mu}$
 Techni-hadrons (LSTC) : WZ resonance (νll), $m_{T, WZ}$
 Major. neutr. (LRSM, no mixing) : 2-lep + jets
 W_R (LRSM, no mixing) : 2-lep + jets
 H_L^{±±} (DY prod., $\text{BR}(H_L^{\pm\pm} \rightarrow \mu\mu)=1$) : SS dimuon, $m_{\mu\mu}$
 Color octet scalar : dijet resonance, m_{jj}



10⁻¹

1

10

10²

Mass scale [TeV]

* Only a selection of the available mass limits on new states or phenomena shown