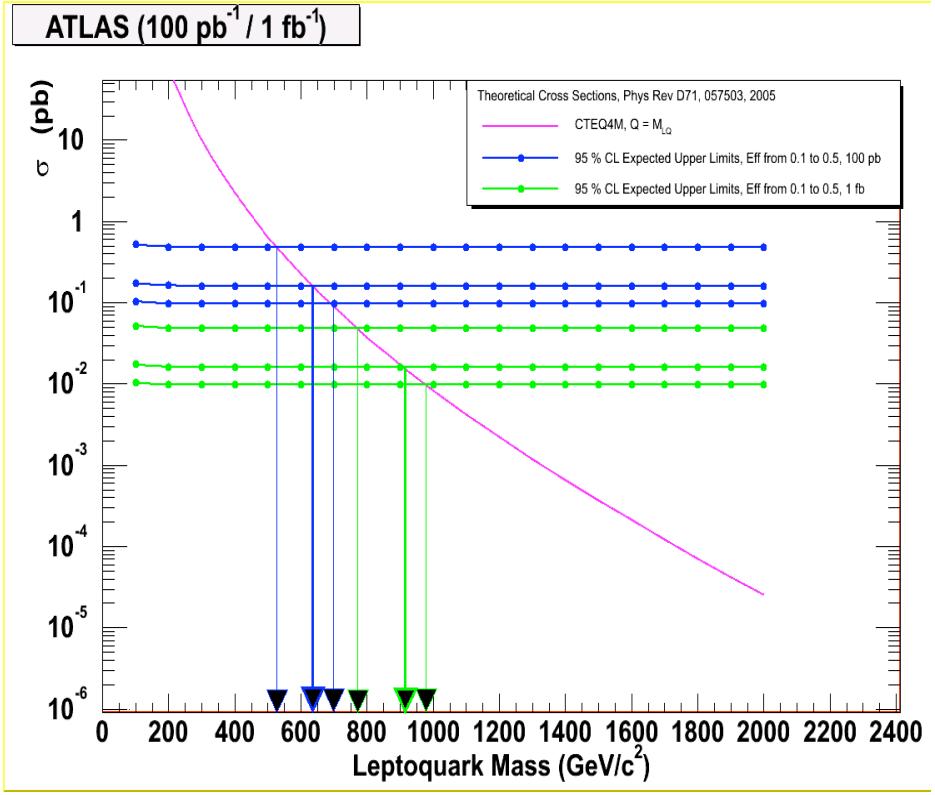
Expected Sensitivity for 100pb^{-1} and 1fb^{-1}



1) the cross section is the NLO recent calculation from M. Spira et al. (Phys.Rev.D71, 057503, 2005) for LQ pair production

2) the signal efficiency is assumed to vary from 0.10 to 0.50 for all masses (going from 100, already excluded, to 2000 GeV/c^2) This would the final efficiency, which will include lepton ID, trigger, kinematical/topological cuts.
a) Remember that, from TeVatron/HERA results, the region of interest with a few pb will be m(LQ) > 300 GeV/c^2
b) the number for the signal efficiency from the old study from Mitsou et al. is about 0.60, so I used that as an upper limit.

3) in the calculation of the expected σ_{limit} (95% CL) I had to make some assumptions on the number of observed and expected events. I used a S/B ratio going from 10 to 100 (again roughly using the numbers quoted in Vienna 2004) and the limit varies of a factor of 2, which effect when crossing the steeply falling theory cross section is negligible.
The "limit" is calculated in the assumption of seeing 0 signal, ie number of events observed = number of expected background events (and background subtraction if the number of observed evts is not 0). So this is really the best scenario. Of course any (limited) excess will lower the mass limit, but of course at some point it will show the new physics...

Conclusion

for 100pb^{-1} we could be able to set limits up to 700 GeV/c^2
for 1fb^{-1} slightly less than 1TeV.