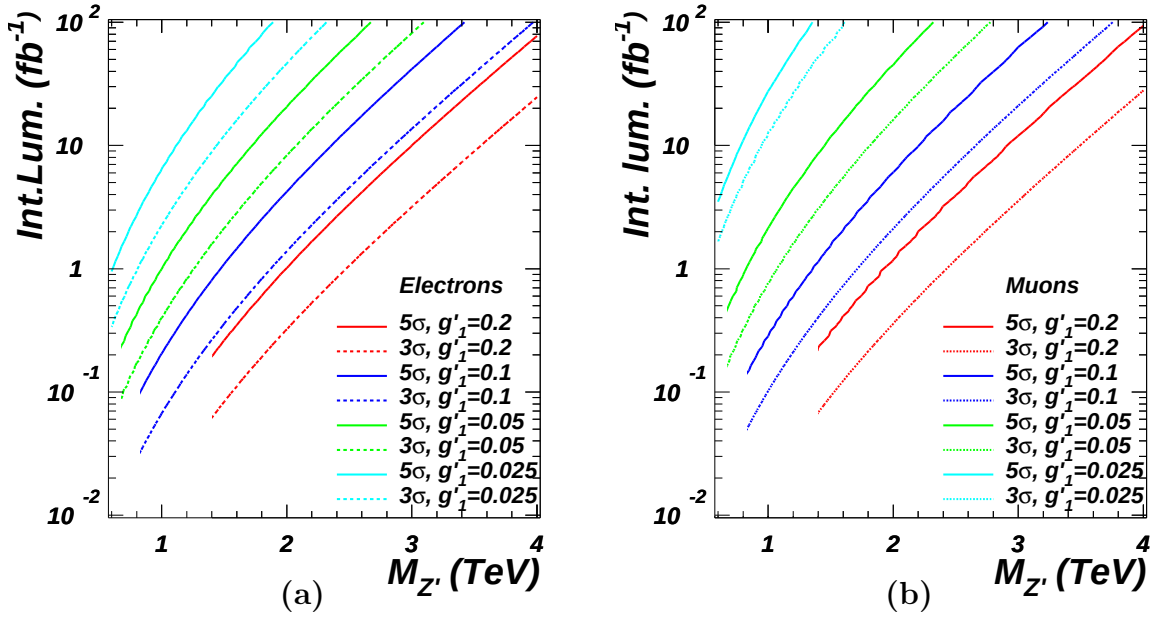

FIG. 9: *Integrated luminosity required for observation at* 3σ *and* 5σ *vs.* $M_{Z'}$ *for selected values of* g'_1 *at the LHC for* $\sqrt{s} = 14$ *TeV for (9a) electrons and (9b) muons. Only allowed combination of masses and couplings are shown, in accordance with eq. (21) and table II.*

the range in luminosities, from 10 pb^{-1} to 100 fb^{-1}. However, just the configuration with $g'_1 = 0.1$ can be probed with very low luminosity, requiring 30(100) pb^{-1} and 50(150) pb^{-1} at $3\sigma(5\sigma)$ respectively considering electrons and muons in the final state. For values of the coupling such as 0.05 and 0.2, 90(220) pb^{-1} and 60(200) pb^{-1} are the integrated luminosities required to start to be sensitive (at $3(5)\sigma$) if electrons are considered, while 160(500) and 70(220) pb^{-1} are the least integrated luminosity required, respectively, if instead we look at muons. It is worth to emphasise here that the first couplings that will start to be probed at the LHC are those around $g'_1 = 0.1$.

The better resolution in the case of electrons reflects in a better sensitivity to smaller Z'_{B-L} masses with respect to muons. For $M_{Z'} = 600$ GeV, the LHC with $\sqrt{s} = 14$ TeV requires 1.0 fb^{-1} to be sensitive at 5σ to a value of the coupling of 0.025 in the electron channel. If we are considering muons, 3.5 fb^{-1} is the required luminosity to probe at 5σ the same value of the coupling.

The 5σ discovery potential for the LHC at $\sqrt{s} = 14$ TeV is summarised in table V, for selected values of Z'_{B-L} masses and couplings.

Again, figures 10 and 11 show a pictorial representation of the Z' properties (widths and