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Implication of ALEPH 30 GeV dimuon resonance at the LHC

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Recent reanlysis of ALEPH data seems to indicate dimuon excess around 30 GeV dimuon in Z -> b bar{b} muˆ+ muˆ- with a branching fraction around 1.1 X 10ˆ{-5}. We discuss a few simplified models for the dimuon excess. In the first class of models, we assume a new resonance couples to both b bar{b} and muˆ+ muˆ-. Within the allowed parameter space for the ALEPH data, this type of models is excluded because of too large Drell-Yan production of&nbs p;dimuon from the b bar{b} collision at the LHC. In the second model, we assume that the 30 GeV excess is a new gauge boson Z' that couples to the SM b and a new vectorlike singlet B quark heavier than Z and not to b bar{b}. Then one can account for the ALEPH data without conflict with the DY constraint. We discuss implication of the model at the LHC.

Summary

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