

Search for high mass dimuon resonances in the ATLAS experiment at $\sqrt{s} = 7$ TeV at the LHC

This poster describes the search for high mass $\mu^+\mu^-$ resonances in pp collisions at $\sqrt{s} = 7$ TeV at the LHC. A first search was conducted using data recorded by the ATLAS experiment during 2010, corresponding to a total integrated luminosity of 40 pb⁻¹. No statistically significant excess above the Standard Model processes was observed in our search region of dimuon invariant mass above 110 GeV, so upper limits at the 95% confidence level were set on the cross-section times branching ratio of Z' resonances decaying to muons as a function of the resonance mass. This poster will present the techniques employed in this search and contain an update using 2011 data. With an expected total integrated luminosity of several hundred pb⁻¹, this search will be sensitive to resonance masses of up to ~ 1.4 TeV for a Z' boson decaying to dimuons in the Sequential Standard Model, that is generally used as a benchmark.

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