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Measurement of total ZZ production cross section and limits on anomalous triple gauge couplings with the ATLAS detector at LHC

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In this talk it is presented a measurement of the $ZZ \rightarrow llll$ production cross section performed by the ATLAS detector in LHC proton-proton collisions at $\sqrt{s}=7$ TeV. Three ZZ decay channels are considered, $eeee$, $e\mu\mu$ or $\mu\mu\mu$, including e or μ leptons produced in the τ decay of the Z 's. The results are based on an integrated luminosity of 4.7fb^{-1} collected by ATLAS in 2011 with a fully operational detector and stable beam conditions. The analysis of di-boson production at the LHC is essential to test the high energy behaviour of electroweak interactions and to search for possible new physics in the bosonic sector. Any deviation from gauge constraints will cause a significant enhancement of the production cross section at high diboson invariant mass (anomalous gauge-boson couplings). Limits on ZZ anomalous triple gauge couplings derived using the cross section alone are also presented.

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