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Search for heavy resonances in vector boson scattering

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If the Higgs boson discovered at the LHC is not exactly the one predicted by the Standard Model the theory becomes strongly coupled at high energy and vector boson scattering violates unitarity in the TeV range. This can be regularised by the introduction of new heavy resonances. These resonances may also couple to quark pairs and can be searched for in their decay to vector or Higgs bosons.

The ATLAS detector at the LHC is collecting data at 13 TeV since 2015. A search for new heavy resonances arising from WW scattering in vector boson fusion events using these data is presented. Interference effects between the new resonances and the Standard Model amplitude are fully taken into account. In addition searches for heavy resonances in the decay to a pair of bosons without tagging the initial state are shown.

Summary

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