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## Charting the Higgs potential with pair-production of Higgs bosons at the ATLAS experiment

*Tuesday 28 May 2024 16:15 (30 minutes)*

Since the discovery of the Higgs boson by the ATLAS and CMS Collaborations in 2012, a major focus in particle physics has been the understanding of its interactions. In the last years, huge progress was made in determining the strength of the Higgs bosons couplings to fermions and vector bosons, but its self-interaction has yet to be established. The Higgs self-interactions are tightly related to the form of the Higgs potential, thus representing an extremely important measurement for our understanding of the origin of electroweak symmetry breaking and our universe. The most natural way to probe the self-interaction and the shape of the Higgs potential is through searches for Higgs boson pairs (HH) at particle colliders. This talk aims to summarize the most recent Higgs boson pairs results of the ATLAS experiment, as well as the prospects for future measurements.

### Keyword-1

ATLAS

### Keyword-2

Higgs

### Keyword-3

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