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Combination of the searches for the Standard Model Higgs boson with the ATLAS detector at the LHC using up to 4.9 fb^{-1} of pp collision data at $\sqrt{s} = 7 \text{ TeV}$

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A preliminary combination of Standard Model Higgs boson searches with the ATLAS experiment, in a dataset corresponding to an integrated luminosity of 4.6 to 4.9 fb^{-1} of pp collision data collected at $\sqrt{s} = 7 \text{ TeV}$ at the LHC, is presented. A Standard Model Higgs boson is excluded at the 95% confidence level (CL) in the mass ranges from 110.0 GeV to 117.5 GeV, 118.5 GeV to 122.5 GeV, and 129 GeV to 539 GeV, while the range 120 GeV to 555 GeV is expected to be excluded in the absence of a signal. The mass regions between 130 GeV and 486 GeV are excluded at the 99% CL. An excess of events is observed around $m_H \sim 126 \text{ GeV}$ with a local significance of 2.5σ , where the expected significance in the presence of a Standard Model Higgs boson for that mass hypothesis is 2.9σ . The global probability for such an excess to occur in the full search mass range 110-600 GeV is approximately 30%, decreasing to 10% when restricted to the range 110-146 GeV.

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