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Autore	Hall David C (David Christopher)
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Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction and Theoretical Background -- Computational Techniques for the LHC -- The ATLAS Experiment -- Overview of the H WW Analysis.-Signal Modelling -- WW Measurement and Modelling -- Other Backgrounds -- Experimental Results -- Status of Higgs Physics.
Sommario/riassunto	This thesis describes the stand-alone discovery and measurement of the Higgs boson in its decays to two W bosons using the Run-I ATLAS dataset. This is the most precise measurement of gluon-fusion Higgs boson production, and is among the most significant results attained at the LHC. The thesis provides an exceptionally clear exposition on a complicated analysis performed by a large team of researchers. Aspects of the analysis performed by the author are explained in detail; these include new methods for evaluating uncertainties on the jet binning used in the analysis, and for estimating the background due to

associated production of a W boson and an off-shell photon. The thesis also describes a measurement of the WW cross section, an essential background to Higgs boson production. The primary motivation of the LHC was to prove or disprove the existence of the Higgs boson. In 2012, CERN announced this discovery and the resultant ATLAS publication contained three decay channels: gg , ZZ , and WW .
