

1. Record Nr.	UNINA9910780887503321
Titolo	At the leading edge [[electronic resource]] : the ATLAS and CMS LHC experiments / / editor, Dan Green
Pubbl/distr/stampa	Singapore ; ; Hackensack, NJ, : World Scientific, c2010
ISBN	1-282-75831-4 9786612758317 981-4277-62-2
Descrizione fisica	1 online resource (448 p.)
Altri autori (Persone)	GreenDan
Disciplina	539.7/7
Soggetti	Large Hadron Collider (France and Switzerland) Nuclear counters Symmetry (Physics) Particles (Nuclear physics)
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	CONTENTS; Chapter 1 Introduction: How Physics Defines the LHC Environment and Detectors D. Green; Chapter 2 The CMS Pixel Detector W. Erdmann; Chapter 3 The Hybrid Tracking System of ATLAS Leonardo Rossi; Chapter 4 The All-Silicon Strip CMS Tracker: Microtechnology at the Macroscale M. Mannelli; Chapter 5 The ATLAS Electromagnetic Calorimeters: Features and Performance Luciano Mandelli; Chapter 6 The CMS Electromagnetic Calorimeter: Crystals and APD Productions P. Bloch; Chapter 7 ATLAS Electronics: An Overview Philippe Farthouat; Chapter 8 Innovations in the CMS Tracker Electronics G. Hall Chapter 9 TileCal: The Hadronic Section of the Central ATLAS Calorimeter K. Anderson, T. Del Prete, E. Fullana, J. Huston, C. Roda and R. StanekChapter 10 Innovations for the CMS HCAL J. Freeman; Chapter 11 ATLAS Superconducting Toroids - The Largest Ever Built Herman H. J. ten Kate; Chapter 12 Constructing a 4-Tesla Large Thin Solenoid at the Limit of What Can Be Safely Operated A. Herv e; Chapter 13 The ATLAS Muon Spectrometer Giora Mikenberg; Chapter 14 The CMS Muon Detector: From the First Thoughts to the Final Design Fabrizio Gasparini

Sommario/riassunto

Too often descriptions of detectors focus on the what and not the why. This volume aims to elucidate how the requirements of the physics at the Large Hadron Collider (LHC) define the detector environment. In turn, the detector choices are made to adopt to that environment. The goal of LHC physics is to explore the mechanism for electroweak symmetry breaking. Because of the minuscule cross-sections which need to be explored, 0.1 fb, the LHC needs to provide 100 fb-1/yr, or an instantaneous luminosity of 10^{34} / (cm² sec). With a bunch crossing interval of 25 nsec, well matched to detector speeds
