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Collana	Scottish graduate series
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Altri autori (Persone)	BinothT
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Soggetti	Large Hadron Collider (France and Switzerland) Particles (Nuclear physics)
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Nota di contenuto	Front Cover; SUSSP Proceedings; Lecturers; Organising Committee; Preface; Thomas Binoth; Contents; Section I: Theoretical Foundations; Perturbative QCD and the Parton Model; Higgs and Electroweak Physics; B Physics in the LHC Era; BSM Phenomenology; Section II: The Large Hadron Collider; The LHC Accelerator: Performance and Technology Challenges; LHC Detectors and Early Physics; Forward Physics at the LHC; Heavy-Ion Physics; New Physics Searches; Section III: Tools; Monte Carlo Tools; Topics in Statistical Data Analysis for HEP; Grid Computing
Sommario/riassunto	Exploring the phenomenology of the Large Hadron Collider (LHC) at CERN, LHC Physics focuses on the first years of data collected at the LHC as well as the experimental and theoretical tools involved. It discusses a broad spectrum of experimental and theoretical activity in particle physics, from the searches for the Higgs boson and physics beyond the Standard Model to studies of quantum chromodynamics, the B-physics sector, and the properties of dense hadronic matter in heavy-ion collisions. Covering the topics in a pedagogical manner, the book introduces the theoretical and phenomenological framework of hadron collisions and presents the current theoretical models of frontier physics. It offers overviews of the main detector components, the initial calibration procedures, and search strategies. The authors also provide explicit examples of physics analyses drawn from the

recently shut down Tevatron. In the coming years, or perhaps even sooner, the LHC experiments may reveal the Higgs boson and offer insight beyond the Standard Model. Written by some of the most prominent and active researchers in particle physics, this volume equips new physicists with the theory and tools needed to understand the various LHC experiments and prepares them to make future contributions to the field--
