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Titolo	Advances in Jet Substructure at the LHC : Algorithms, Measurements and Searches for New Physical Phenomena / / by Roman Kogler
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Disciplina	539.7
Soggetti	Particles (Nuclear physics) Quantum field theory Nuclear physics Particle accelerators Mathematics - Data processing Mathematical physics Elementary Particles, Quantum Field Theory Nuclear and Particle Physics Accelerator Physics Computational Mathematics and Numerical Analysis Theoretical, Mathematical and Computational Physics
Lingua di pubblicazione	Inglese
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Status of the Standard Model after the discovery of a Higgs boson -- Beyond the Standard Model -- Particle decays and calculations -- Jet substructure -- Jet tagging -- Particle detectors for jet substructure -- Experimental studies of boosted techniques -- Final state reconstruction -- Techniques for background estimation -- Standard Model measurements in highly boosted final states -- Searches for new physics -- Conclusion -- Index.
Sommario/riassunto	This book introduces the reader to the field of jet substructure, starting from the basic considerations for capturing decays of boosted particles in individual jets, to explaining state-of-the-art techniques. Jet substructure methods have become ubiquitous in data analyses at the

LHC, with diverse applications stemming from the abundance of jets in proton-proton collisions, the presence of pileup and multiple interactions, and the need to reconstruct and identify decays of highly-Lorentz boosted particles. The last decade has seen a vast increase in our knowledge of all aspects of the field, with a proliferation of new jet substructure algorithms, calculations and measurements which are presented in this book. Recent developments and algorithms are described and put into the larger experimental context. Their usefulness and application are shown in many demonstrative examples and the phenomenological and experimental effects influencing their performance are discussed. A comprehensive overview is given of measurements and searches for new phenomena performed by the ATLAS and CMS Collaborations. This book shows the impressive versatility of jet substructure methods at the LHC.