

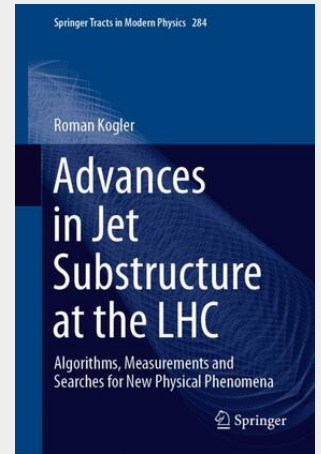
Kogler

Advances in Jet Substructure at the LHC

Algorithms, Measurements and Searches for New Physical Phenomena

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.

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171,19 €

159,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030728571

Medium: Buch

ISBN: 978-3-030-72857-1

Verlag: Springer International Publishing

Erscheinungstermin: 11.05.2021

Sprache(n): Englisch

Auflage: 1. Auflage 2021

Serie: Springer Tracts in Modern Physics

Produktform: Gebunden

Gewicht: 623 g

Seiten: 287

Format (B x H): 160 x 241 mm

