

1. Record Nr.	UNINA9910473458503321
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Titolo	Pattern Recognition, Tracking and Vertex Reconstruction in Particle Detectors
Pubbl/distr/stampa	Springer Nature, 2021 Cham : , : Springer International Publishing AG , , 2021 ©2021
ISBN	3-030-65771-X
Descrizione fisica	1 online resource (208 pages)
Collana	Particle Acceleration and Detection
Altri autori (Persone)	StrandlieAre
Soggetti	Particle & high-energy physics Mensuration & systems of measurement Pattern recognition Mathematical physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	This open access book is a comprehensive review of the methods and algorithms that are used in the reconstruction of events recorded by past, running and planned experiments at particle accelerators such as the LHC, SuperKEKB and FAIR. The main topics are pattern recognition for track and vertex finding, solving the equations of motion by analytical or numerical methods, treatment of material effects such as multiple Coulomb scattering and energy loss, and the estimation of track and vertex parameters by statistical algorithms. The material covers both established methods and recent developments in these fields and illustrates them by outlining exemplary solutions developed by selected experiments. The clear presentation enables readers to easily implement the material in a high-level programming language. It also highlights software solutions that are in the public domain whenever possible. It is a valuable resource for PhD students and researchers working on online or offline reconstruction for their experiments.

