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Titolo	Frontiers of Particle Beams [[electronic resource] ] : Proceedings of a Topical Course, Held by the Joint US-CERN School on Particle Accelerators at South Padre Island, Texas, October 23–29, 1986 // edited by Melvin Month, Stuart Turner
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Descrizione fisica	1 online resource (XII, 700 p. 122 illus.)
Collana	Lecture Notes in Physics, , 0075-8450 ; ; 296
Disciplina	539.7/3
Soggetti	Physical measurements Measurement Elementary particles (Physics) Quantum field theory Measurement Science and Instrumentation Elementary Particles, Quantum Field Theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di contenuto	Phase space dynamics -- Equations for multiparticle dynamics -- Electromagnetic fields and instabilities in accelerators -- Physics of beam instabilities -- Iteration and accelerator dynamics -- Electron storage rings for the production of synchrotron radiation -- to the physics of the free electron laser -- Space charge dominated beams -- Intense electron beams -- Correlations and beam noise -- Advanced cooling techniques: Stochastic cooling of bunches in high-energy colliders -- Intra-beam scattering -- Crystallization of particle beams -- to the next generation of linear colliders -- Low emittance storage ring design -- Emittance preservation in linear colliders -- High energy electron linear accelerators, fields and structures -- A conceptual design of final Focus Systems for linear colliders -- An introduction to beamstrahlung and disruption -- RF frequency scaling and gyrokystron sources for linear supercolliders -- An introduction to acceleration mechanisms -- Particle beams and Twentieth Century

science and technology -- Introductory talk Particle accelerators have a history, do they have a future? -- Accelerators and the scientific frontier -- Frontiers in particle accelerator research and development -- Superconducting radio-frequency technology: Expanding the horizons of physics and accelerators.

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## Sommario/riassunto

The purpose of the proceedings of the Accelerator Schools is to introduce CERN- and US-students to advanced ideas and concepts from the frontiers of the rapidly developing field of accelerator physics and technology. Considerable emphasis is put on understanding the rich variety of mechanisms at work in a charged particle beam determining its behaviour. The subjects range from the very topical problem of dynamic aperture, which is of interest for predicting the stability of particles in the new machines such as SSC and LEP, through some better known subjects such as coherent and incoherent radiation, which is of increasing importance as a tool for industry and basic research in other disciplines, to the very latest and most exotic discovery of crystal beams, which is as yet in the totally academic phase of its development. This central theme of the internal physics of beams has been supplemented by lectures on the coming generation of linear colliders, the status of the superconducting project CEBAF, and on other topics.

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