

1. Record Nr.	UNINA9910457758803321
Autore	Hofmann Albert <1933->
Titolo	The physics of synchrotron radiation / / Albert Hofmann [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2004
ISBN	1-107-14141-9 1-280-47746-6 9786610477463 0-511-19552-4 0-511-19414-5 0-511-19618-0 0-511-31397-7 0-511-53497-3 0-511-19416-1
Descrizione fisica	1 online resource (xxii, 323 pages) : digital, PDF file(s)
Collana	Cambridge monographs on particle physics, nuclear physics, and cosmology ; ; 20
Disciplina	539.7/35
Soggetti	Synchrotron radiation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references (pages 316-320) and index.
Nota di contenuto	; pt. I. Introduction -- ; 1. A qualitative treatment of synchrotron radiation -- ; 2. Fields of a moving charge -- ; 3. The emitted radiation field and power -- ; pt. II. Synchrotron radiation -- ; 4. Synchrotron radiation : basic physics -- ; 5. Synchrotron radiation : properties -- ; pt. III. Undulator radiation -- ; 6. A qualitative treatment -- ; 7. The plane weak undulator -- ; 8. The plane strong undulator -- ; 9. The helical undulator -- ; 10. Wiggler magnets -- ; 11. Weak magnets -- a generalized weak undulator -- ; pt. IV. Applications -- ; 12. Optics of SR -- imaging -- ; 13. Electron-storage rings -- ; 14. Effects of radiation on the electron beam -- ; 15. Radiation emitted by many particles -- ; A. Airy functions.
Sommario/riassunto	This book explains the underlying physics of synchrotron radiation and derives its main properties. It is divided into four parts. The first covers the general case of the electromagnetic fields created by an accelerated

relativistic charge. The second part concentrates on the radiation emitted by a charge moving on a circular trajectory. The third looks at undulator radiation, covering plane weak undulators, strong undulators and other more general undulators. The final part deals with applications and investigates the optics of synchrotron radiation dominated by diffraction due to the small opening angle. It also includes a description of electron storage rings as radiation sources and the effect of the emitted radiation on the electron beam. This book provides a valuable reference for scientists and engineers in the field of accelerators, and all users of synchrotron radiation.
