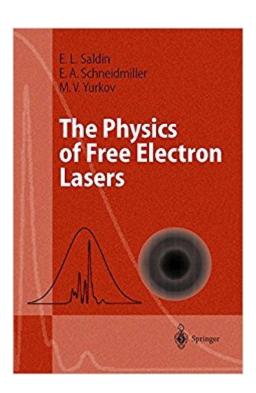


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The Physics Of Free Electron Lasers (Advanced Texts In Physics)





Synopsis

The Free Electron Laser (FEL) will be a crucial tool for research and industrial applications. This book describes the physical fundamentals of FELs on the basis of classical mechanics, electrodynamics, and the kinetic theory of charged particle beams, and will be suitable for graduate students and scientists alike. After a short introduction, the book discusses the theory of the FEL amplifier and oscillator, diffraction effects in the amplifier, and waveguide FEL.

Book Information

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The free electron laser (FEL) will be an outstanding tool for research and industrial application. This book describes the physical fundamentals on the basis of classical mechanics, electrodynamics, and the kinetic theory of charged particle beams, and will be suitable for graduate students and scientists alike. After a short introduction, the book discusses the theory of the FEL amplifier and oscillator and diffraction effects in the amplifier. Waveguide FEL and shot noise are also treated.

It is a good start for anyone who don't have any background in the field of free electron lasers. The content is self consistent in the way that all results start from first principles. When approximations have to be made to proceed, they are stated explicitly in an understandable way. The variables are defined somewhat different from other references but the choices naturally follow the physics behind.

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