1. Record Nr. UNINA9910988283603321

Autore	Hodgson Norman
Titolo	Laser Resonators and Beam Propagation : Fundamentals, Advanced Concepts, Applications / / by Norman Hodgson, Horst Weber
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-031-51873-X
Edizione	[3rd ed. 2025.]
Descrizione fisica	1 online resource (XXXIII, 1026 p. 794 illus., 187 illus. in color.)
Collana	Springer Series in Optical Sciences, , 1556-1534 ; ; 108
Disciplina	621.366
Soggetti	Lasers Optics Nonlinear optics Optical materials Laser Optics and Photonics Nonlinear Optics Optical Materials Laser Technology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Geometrical Optics -- Wave Optics -- Polarization -- The Fabry-Perot Interferometer -- Stable Resonators -- Resonators on the Stability Limits -- Unstable Resonators.
Sommario/riassunto	This book delivers a uniquely comprehensive and detailed discussion of the properties of optical resonators and the propagation of laser beams, covering basic theory and practical implementations including recent research. It presents the fundamental theories of resonators, such as geometrical optics, diffraction, and polarization, as well as the characteristics of important resonator schemes and their modelling. The book uses classical optics as a framework for discussing the characteristic parameters of light, such as coherence, polarization, beam size and divergence, and understanding the most fundamental laws of light propagation, including the generation and tailoring of laser beams using optical resonators in continuous-wave, Q-switched

and modelocked laser operation. Intra-cavity and extra-cavity harmonic generation are discussed as well. The long-anticipated third edition features considerable expansions and updates, with a new section on ultrafast pulse generation and propagation and mode-locked laser resonators. These, combined with the carefully structured text and autonomous nature of the chapters, make the book ideal for newcomers and invaluable to specialists in both academic and industry research.