1. Record Nr. UNINA9911020248003321 Autore McAulay Alastair D **Titolo** Military laser technology for defense: technology for revolutionizing 21st century warfare / / Alastair D. McAulay Hoboken, NJ,: Wiley, c2011 Pubbl/distr/stampa **ISBN** 9786613374431 9781283374439 1283374439 9781118019542 1118019547 9781118019535 1118019539 9781118019559 1118019555 Descrizione fisica 1 online resource (325 p.) Classificazione TEC019000 Disciplina 623.4/46 Soggetti Lasers - Military applications Laser weapons Lingua di pubblicazione Inglese **Formato** Materiale a stampa Monografia Livello bibliografico Note generali Description based upon print version of record. Includes bibliographical references and index. Nota di bibliografia Nota di contenuto Military Laser Technology for Defense: Technology for Revolutionizing 21st Century Warfare; CONTENTS; PREFACE; ACKNOWLEDGMENTS; ABOUT THE AUTHOR; PART I: OPTICS TECHNOLOGY FOR DEFENSE SYSTEMS; 1 OPTICAL RAYS; 1.1 PARAXIAL OPTICS; 1.2 GEOMETRIC OR RAY OPTICS; 1.2.1 Fermat's Principle; 1.2.2 Fermat's Principle Proves Snell's Law for Refraction: 1.2.3 Limits of Geometric Optics or Ray Theory; 1.2.4 Fermat's Principle Derives Ray Equation; 1.2.5 Useful Applications of the Ray Equation; 1.2.6 Matrix Representation for Geometric Optics; 1.3 OPTICS FOR LAUNCHING AND RECEIVING BEAMS 1.3.1 Imaging with a Single Thin Lens1.3.2 Beam Expanders; 1.3.3 Beam Compressors: 1.3.4 Telescopes: 1.3.5 Microscopes: 1.3.6 Spatial Filters: 2 GAUSSIAN BEAMS AND POLARIZATION: 2.1 GAUSSIAN BEAMS:

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Sommario/riassunto

"Lasers in War will provide the basic konwledge to create, design, and implement laser systems for the battlefield, including only unclassified or declassified information. The first three parts of the book provide background material: optics and lasers for war; propagation of laser light in the atmosphere; and propagation of laser light in fiber and optical waveguides. The nest three parts describe military systems involving propagation through the atmosphere: weapons damage systems military systems for information communication; and military systems for sensing. The last part describes military systems involving propagation through optical fiber. This book is timely, as conflicts of late have accelerated progress in military laser system development. Laser weapons are not only effective for directed energy destruction but also for use against personnel by blinding, for countermeasures against heat seeking IR missiles, and for applications in space where communication and GPS satellites need protection. Practical concerns and limits of laser technology will be addressed in each area of application"--