

1. Record Nr.	UNINA9910824274703321
Autore	Joseph Charles Lynn
Titolo	Modern devices : the simple physics of sophisticated technology // by Charles L. Joseph and Santiago Bernal
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley, , 2016 ©2016
ISBN	1-119-01183-3 1-119-01182-5
Descrizione fisica	1 online resource (688 p.)
Disciplina	670
Soggetti	Manufactures - Technological innovations Electronic apparatus and appliances - Technological innovations Industrial equipment - Technological innovations Optical instruments - Technological innovations Technology Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	TITLE PAGE; TABLE OF CONTENTS; PREFACE; ABOUT THE COMPANION WEBSITE; 1 PRINCIPLES OF PHYSICS AND THE RELEVANCE TO MODERN TECHNOLOGIES; 1.1 CM, EM, AND QM: THE BACKBONE OF PHYSICS; 1.2 PHOTONICS AND ELECTRONICS; 2 EVERYDAY HOME APPLIANCES; 2.1 THE AIR CONDITIONER; 2.2 MICROWAVE OVENS; 2.3 SMOKE DETECTORS; 2.4 COMPACT DISCS, DIGITAL VERSATILE DISCS, AND BLU-RAY DISCS; 2.5 PHOTOCOPIERS AND FAX MACHINES; 3 DEVICES ENCOUNTERED IN MODERN LIFE; 3.1 METAL DETECTORS FOR AIRPORTS AND TRAFFIC LIGHTS; 3.2 BARCODE SCANNERS, QUICK RESPONSE CODES, AND RADIO-FREQUENCY IDENTIFICATION READERS 3.3 GLOBAL POSITIONING3.4 TRANSPORTATION TECHNOLOGIES; 4 VACUUM SYSTEMS: ENABLING HIGH-TECH INDUSTRIES; 4.1 VACUUM CHAMBER TECHNOLOGY; 4.2 PHYSICS OF SOME VACUUM GAUGES; 4.3 LOW VACUUM VIA VENTURI, MECHANICAL, OR SORPTION PUMPS; 4.4 HV VIA DIFFUSION, TURBOMOLECULAR, OR CRYOGENIC PUMPS; 4.5 UHV VIA ION PUMPS; 5 CLEANROOMS, AN ENABLING TECHNOLOGY; 6 SOLID-

STATE ELECTRONICS; 6.1 CONDUCTING, SEMICONDUCTING, AND INSULATING MATERIALS; 6.2 RESISTORS, CAPACITORS, AND INDUCTORS; 6.3 DIODES AND TRANSISTORS; 6.4 FET, JFET, MOSFET, CMOS, AND TTL; 6.5 SUMMARY; 7 HIGH-TECH SEMICONDUCTOR FABRICATION  
7.1 THIN FILMS7.2 THIN-FILM DEPOSITION METHODS; 7.3 HIGH-PURITY CRYSTALS VIA MBE; 7.4 PHOTOLITHOGRAPHY AND ETCH TECHNIQUES; 7.5 IN SITU AND INTERMEDIATE-STAGE TESTS; 7.6 DEVICE STRUCTURES AND IC PACKAGING; 8 MATERIALS SCIENCE-INVALUABLE HIGH-TECH CONTRIBUTIONS; 8.1 THE USE OF COMPOSITE MATERIALS; 8.2 THIN-FILM MULTILAYERS; 8.3 NANOTECHNOLOGY; 9 LIGHT SOURCES; 9.1 INCANDESCENT LAMPS; 9.2 GAS DISCHARGE LAMPS; 9.3 FLUORESCENT LAMPS; 9.4 LIGHT EMITTING DIODES; 9.5 X-RAY SOURCES; 9.6 LASERS; 9.7 SYNCHROTRON LIGHT SOURCES; 9.8 SUMMARY OF LIGHT SOURCES; 10 SOME BASIC PHYSICS OF OPTICAL SYSTEMS  
10.1 REFRACTIVE AND REFLECTIVE OPTICS AND THEIR USES10.2 POLARIZATION AND BIREFRINGENCE; 10.3 DIFFRACTION; 10.4 HOLOGRAPHY; 10.5 PRIMARY ABERRATIONS; 11 OPTICAL COUPLERS INCLUDING OPTICAL FIBERS; 11.1 OPTICAL FIBERS AND HOLLOW WAVEGUIDES; 11.2 COUPLERS FOR LONG DISTANCES; 11.3 OPTICAL COUPLERS AS A MEANS OF ELECTRONIC ISOLATION; 12 SPECTROGRAPHS: READING THE "BAR CODE" OF NATURE; 12.1 PRISMS, RULED GRATINGS, AND HOLOGRAPHIC GRATINGS; 12.2 LONG-SLIT SPECTROGRAPHS; 12.3 INTEGRAL FIELD UNIT AND FABRY-PEROT; 12.4 ECHELLE SPECTROGRAPHS; 12.5 RAMAN SPECTROGRAPHS; 13 OPTICAL AND ELECTRON MICROSCOPY  
13.1 OPTICAL MICROSCOPES13.2 THE TRANSMISSION ELECTRON MICROSCOPE; 13.3 ELECTRON-MATTER INTERACTIONS; 13.4 BRAGG'S DIFFRACTION; 13.5 SCANNING PROBE MICROSCOPES; 14 PHOTOELECTRIC IMAGE SENSORS; 14.1 SOLID-STATE VISIBLE WAVELENGTH SENSORS; 14.2 PHOTOEMISSIVE DEVICES FOR UV AND X-RAYS; 14.3 INFRARED "THERMAL" SENSORS AND NIGHT VISION SENSORS; 15 IMAGE DISPLAY SYSTEMS; 15.1 THE HUMAN VISUAL SYSTEM; 15.2 WHO INVENTED TELEVISION?; 15.3 TRADITIONAL AND HIGH-DEFINITION TV DISPLAY FORMATS; 15.4 CATHODE RAY TUBES; 15.5 LIQUID CRYSTAL DISPLAYS; 15.6 PLASMA DISPLAYS; 15.7 DIGITAL MICRO-MIRROR DEVICES  
15.8 TOUCH SCREENS

---