1. Record Nr. UNICAMPANIASUN0086487

Autore	Bruice, Paula Y.
Titolo	Chimica organica / Paula Yurkanis Bruice ; edizione italiana a cura di: Anna Aiello ... [et al.] ; coordinamento e revisione: Ernesto Fattorusso
Pubbl/distr/stampa	Napoli : EdiSES, 2005
ISBN	88-7959-301-3
Edizione	[2. rist]
Descrizione fisica	XXXIV, 1228 p., [39] c. : ill. ; 29 cm. - Trad. della 4. ed. americana.
Disciplina	547
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr. UNINA9911020129503321

Autore	Reed Graham T
Titolo	Silicon photonics : an introduction / / Graham T. Reed, Andrew P. Knights
Pubbl/distr/stampa	Chichester ; ; Hoboken, NJ, : John Wiley, c2004
ISBN	9786610272556 9781280272554 1280272554 9780470345948 0470345942 9780470870358 0470870354 9780470014189 0470014180
Descrizione fisica	1 online resource (277 p.)
Altri autori (Persone)	KnightsAndrew P
Disciplina	621.38152
Soggetti	Optoelectronic devices Silicon - Optical properties Photonics

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	Silicon Photonics; Contents; About the Authors; Foreword; Acknowledgements; 1 Fundamentals; 1.1 What is Phase?; 1.2 What is Polarisation?; 1.3 What is Interference?; 2 The Basics of Guided Waves; 2.1 The Ray Optics Approach to Describing Planar Waveguides; 2.2 Reflection Coefficients; 2.3 Phase of a Propagating Wave and its Wavevector; 2.4 Modes of a Planar Waveguide; 2.4.1 The Symmetrical Planar Waveguide; 2.4.2 The Asymmetrical Planar Waveguide; 2.4.3 Solving the Eigenvalue Equations for Symmetrical and Asymmetrical Waveguides; 2.4.4 Monomode Conditions; 2.4.5 Effective Index of a Mode 2.5 A Taste of Electromagnetic Theory2.6 Simplifying and Solving the Wave Equation; 2.7 Another Look at Propagation Constants; 2.8 Mode Profiles; 2.9 Confinement Factor; 2.10 The Goos-Hanchen Shift; 3 Characteristics of Optical Fibres for Communications; 3.1 The Structure of Optical Fibres; 3.2 Modes of an Optical Fibre; 3.2.1 Modes of a Step-index Fibre; 3.2.2 Modes of a Graded-index Fibre; 3.3 Numerical Aperture and Acceptance Angle; 3.4 Dispersion in Optical Fibres; 3.4.1 Intermodal Dispersion; 3.4.2 Intramodal Dispersion 3.5 Single-mode Fibres: Mode Profile, Mode-field Diameter, and Spot Size3.6 Normalised Frequency, Normalised Propagation Constant, and Cutoff Wavelength; References; 4 Silicon-on-Insulator (SOI) Photonics; 4.1 Introduction; 4.2 Silicon-on-Insulator Waveguides; 4.2.1 Modes of Two-dimensional Waveguides; 4.3 The Effective Index Method of Analysis; 4.4 Large Single-mode Rib Waveguides; 4.5 Refractive Index and Loss Coefficient in Optical Waveguides; 4.6 Contributions to Loss in an Optical Waveguide; 4.6.1 Scattering; 4.6.2 Absorption; 4.6.3 Radiation; 4.7 Coupling to the Optical Circuit 4.7.1 Grating Couplers4.7.2 Butt Coupling and End-fire Coupling; 4.7.3 Robust Coupling to Waveguides for Commercial Applications; 4.7.4 Measurement of Propagation Loss in Integrated Optical Waveguides; 4.8 Optical Modulation Mechanisms in Silicon; 4.8.1 Electric Field Effects; 4.8.2 Carrier Injection or Depletion; 4.8.3 The Thermo-optic Effect; 4.9 Other Advantages and Disadvantages of Silicon Photonics; References; 5 Fabrication of Silicon Waveguide Devices; 5.1 Silicon-on-Insulator (SOI); 5.1.1 Separation by IMplanted OXygen (SIMOX); 5.1.2 Bond and Etch-back SOI (BESOI) 5.1.3 Wafer Splitting (SmartCut(®) Process to Produce Unibond(®) Wafers)5.1.4 Silicon Epitaxial Growth; 5.1.5 Deciding on the SOI; 5.2 Fabrication of Surface Etched Features; 5.2.1 Photolithography; 5.2.2 Silicon Etching; 5.2.3 Critical Dimension Control; 5.3 Oxidation; 5.4 Formation of Submicron Silicon Waveguides; 5.4.1 Silicon Dioxide Thickness; 5.4.2 Surface and Interface Roughness; 5.4.3 Sidewall Roughness; 5.5 Silicon Doping; 5.5.1 Ion Implantation; 5.5.2 The Implantation System; 5.5.3 Implantation Parameters; 5.5.4 Dopant Activation and Drive-in; 5.6 Metallisation; 5.6.1 Via Formation 5.6.2 Metal Deposition
Sommario/riassunto	The growing demand for instant and reliable communication means that photonic circuits are increasingly finding applications in optical communications systems. One of the prime candidates to provide satisfactory performance at low cost in the photonic circuit is silicon. Whilst silicon photonics is less well developed as compared to some

other material technologies, it is poised to make a serious impact on the telecommunications industry, as well as in many other applications, as other technologies fail to meet the yield/performance/cost trade-offs. Following a sympathetic tutorial approach,