

# Index

- $\alpha$ -series 75, 77, 86, 88–89
- active materials 151–153
- Anderson localization 143, 145, 147, 149
- APDs, *see* avalanche photodiode detectors
- aperiodic photonic structures 8, 58
- aperiodic structures, rotational symmetry in 66–79
- Auger recombination 265–266
- avalanche photodiode detectors (APDs) 217, 291
  
- Bessel order, azimuthal 106, 114–115
- biexcitons 254, 258–259, 263
- biosensing 385–388, 390–392, 394–396, 398–400, 402, 404, 406–408, 410, 412
  - label-free 386–387, 412
  - ring resonator 399, 412–413
- biosensors 385–386, 396, 412
  - label-free 386, 389, 412
- bipolar junction transistor (BJT) 355
- BJT, *see* bipolar junction transistor
- Brillouin zone 19–21, 66, 242–243
  
- cavity-enhanced optical dipole force (CEODF) 222–223, 228
- CBE, *see* chemical beam epitaxy
  
- CCD, *see* charge-coupled device
- CEODF, *see* cavity-enhanced optical dipole force
- charge-coupled device (CCD) 110–111
- chemical beam epitaxy (CBE) 168, 179
- chemical mechanical polishing (CMP) 319, 321
- chemical vapor deposition (CVD) 407
- CMOS, *see* complementary metal-oxide semiconductor
- CMOS inverters 374
- CMP, *see* chemical mechanical polishing
- colloidal quantum dots 240–241, 248–249, 261, 265–266, 270, 272, 275, 277, 282–283, 290
- complementary metal-oxide semiconductor (CMOS) 3, 39, 168, 309–310, 326, 374
- course wavelength division multiplexing (CWDM) 328, 330
- CVD, *see* chemical vapor deposition
- CWDM, *see* course wavelength division multiplexing
  
- dark state 259, 261–262
- DBRs, *see* distributed Bragg reflectors

- defect modes 22–23, 25, 29, 31, 33, 83
- DFB grating 332–334
- DFB laser 316, 320, 332, 335–337
- dielectric cylinders 82, 89, 92–93
- disordered photonics 127–156
- distributed Bragg reflectors (DBRs) 11, 14–15, 21, 23, 38, 281–282, 311, 317, 322–324, 327, 331, 338
- Dyson equation 137–138, 140, 142
  
- EAMs, *see* electroabsorption modulators
- EBIC, *see* electron-beam-induced current
- EBL, *see* electron beam lithography
- electroabsorption modulators (EAMs) 311, 335–336, 344
- electromagnetic field 2, 8, 20, 42, 103, 133, 135–136, 139–140, 216, 294, 316
- electromagnetic waves 12, 127, 130, 132, 139, 141–142, 145, 315, 389
- electron acceptors 367
- electron-beam-induced current (EBIC) 202
- electron beam lithography (EBL) 101, 333–334, 338
- electron/hole injectors 241
- electron mobility 169–170, 182–183, 189, 193, 359
- electronic wavefunctions 18, 242
- entangled photon sources (EPSs) 241, 259, 294
- EPSs, *see* entangled photon sources
- EQEs, *see* external quantum efficiencies
- external quantum efficiencies (EQEs) 274–275, 277–278
  
- FDTD, *see* finite-difference time domain
- FEM, *see* finite-element method
- FET, *see* field-effect transistor
- FET, InAs-based nanowire 189, 194
- FET
  - lateral gate nanowire 172, 183–184
  - nanowire 171, 176, 183–185, 188, 191, 197–199
  - organic 352, 355–357, 359–361, 363–365, 368, 370, 373–375
  - organic thin-film 351, 356, 368, 373
  - p-channel 367, 374
  - single-crystal 359, 366, 372, 375
  - thin-film 358–359, 367–374
- FET devices 355–360, 364, 370, 372
  - organic 356–357, 360–361, 367, 373
- FET film 370–371
- FHD, *see* Fourier–Hankel decomposition
- field-effect mobility 356, 360
- field-effect transistor (FET) 166–167, 169–170, 175–176, 189, 191, 193–194, 197, 199–200, 351–361, 368, 370, 372–374
- fine structure splitting (FSS) 258–259, 290
- finite-difference time domain (FDTD) 23, 25, 96, 221, 229, 341–342
- finite-element method (FEM) 82, 171, 173, 222, 324
- Fourier space 73, 76, 80, 101
- Fourier transform 64, 99, 108
- Fourier–Hankel decomposition (FHD) 104–105, 112–113

- fractional Fourier transformation (FRFT) 107–108
- free spectral range (FSR) 325, 327, 403–404
- FRFT, *see* fractional Fourier transformation
- FSR, *see* free spectral range
- FSS, *see* fine structure splitting
  
- GA, *see* golden angle
- GA arrays 95–96, 98, 104
- GA spiral 71–72, 74–78, 82–83, 86, 88–92, 97–98, 100, 102, 106, 111–112, 114
- golden angle (GA) 68–73, 75–78, 82–83, 87, 92, 110–111, 113
- graphene 286–287
- Green's function 82, 133, 135, 137–138, 141
  - free-space 134
  - retarded 134, 139–141
- group III–V on silicon 309–310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338
  
- HCG-VCSELs, *see* high-contrast-grating vertical-cavity surface-emitting lasers
- HCGs
  - see* high-contrast gratings
  - silicon patterning of 339
- HEBs, *see* hot-electron bolometers
- HEMT, *see* high-electron-mobility transistor
- hexamethyldisilazane (HMDS) 365–366
- high-contrast-grating vertical-cavity surface-emitting lasers (HCG-VCSELs) 311
- high-contrast gratings (HCGs) 339–342
- high-electron-mobility transistor (HEMT) 166
- HMDS, *see* hexamethyldisilazane
- hot-electron bolometers (HEBs) 164
- hybrid lasers 319, 330, 332, 343
  
- III–V materials 268, 273, 314, 316–317, 319
- III–V-on-silicon lasers 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335
- III–V photodiode 332
- III–V waveguide 317–318, 322–323, 333, 337
- InAs nanowires 168–169, 182, 184, 189–190, 194
  
- laser excitation 261, 264–265
- LDOS, *see* local density of states
- LEDs, *see* light-emitting diodes
- light amplification 313, 317, 322–323, 325, 339–340
- light-emitting diodes (LEDs) 81, 186, 239–240, 273–274, 277
- light trapping 95, 151, 153–154
- light-trapping mechanism for photovoltaic applications 150–157
- local density of states (LDOS) 62, 82–83, 88, 92
- localized surface plasmon (LSP) 94, 97
- LSP, *see* localized surface plasmon
  
- MBE, *see* molecular beam epitaxy
- mechanical amplification 213, 234–235

- mechanical modes 211, 213–215, 222, 224–227, 230–232, 235–236
- metal-organic chemical vapor deposition (MOCVD) 280
- metal-oxide semiconductor field-effect transistor (MOSFET) 166, 353
- microfluidics 392, 398–399, 408, 410–411
- MOCVD, *see* metal-organic chemical vapor deposition
- molecular beam epitaxy (MBE) 245–246, 280
- MOSFET, *see* metal-oxide semiconductor field-effect transistor
- multifractal analysis 84, 86, 88
- multifractal spectra 85, 87
  
- nano-optomechanical oscillators 209–236
- nanowire FET detectors 189–203
- nanowire transistors 188, 191
- nanowires, heterostructured 180, 203, 205
- NEP, *see* noise-equivalent power
- noise-equivalent power (NEP) 164–165, 188, 196, 198–199
  
- OAM, *see* orbital angular momentum
- off-stoichiometric thiol-ene (OSTE) 399, 408, 410, 412
- OLEDs, *see* organic light-emitting diodes
- optical microcavities 290, 293–294
- optoelectronic devices 5, 240, 243, 248, 267
  - nanostructure-based 8
- optomechanics 3, 8, 209–211, 213
  
- orbital angular momentum (OAM) 8, 57, 74, 103, 106, 110, 112
- organic light-emitting diodes (OLEDs) 241, 275, 277–278
- organic semiconductors 351–374
  - application of 351–352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374
- organic transistors 357–373
- OSTE, *see* off-stoichiometric thiol-ene
  
- PbS quantum dots 272, 284–286
- PCs, *see* photonic crystals
- PDMS, *see* polydimethylsiloxane
- PECVD, *see* plasma-enhanced chemical vapor deposition
- pentacene 357–359, 369
- phase propagation constant 401, 403–404
- phenacene 351–352, 369–370, 372–375
- photocurrent 174, 285–286, 335
- photodetectors 97, 268, 276, 291, 309, 320, 335, 344
- photodiode 335
- photolithography 399, 409, 411
- photonic chips 398
- photonic crystals (PCs) 8, 11–16, 18, 20, 22, 24–28, 30, 32, 34, 36, 38–48, 145, 155–157, 214, 216
- photonic crystals
  - 2.5-dimensional 38–39, 41
  - three-dimensional 43
  - two-dimensional 25, 27
- photonic heterostructures 42, 84
- photonic integrated circuit (PIC) 6–7, 13, 29, 31, 33, 44, 47, 309–310, 314, 343
- photonic materials 151–152
  - disordered 150–151, 156



- photonic modes 21, 23, 39–41, 146, 228
- photonics
  - integrated 5, 47–48, 272
  - microwave 270, 272
  - silicon-based 6, 309
  - siliconizing 318, 337
- photopatterning 410–411
- photovoltaic devices 285
- phyllotaxis 69–72
- physical vapor deposition 13, 39
- physical vapor transport 359, 366
- PIC, *see* photonic integrated circuit
- picene 370–374
- planar ring resonator sensors 393, 396
- plasma-enhanced chemical vapor deposition (PECVD) 321, 407–408
- plasmonic arrays 95, 97–98
- PMMA, *see* poly(methyl methacrylate)
- poly(methyl methacrylate) (PMMA) 220, 267, 270–271, 407
- polydimethylsiloxane (PDMS) 395, 397–398, 407–410
- protein biomarkers 395–396
- Purcell factor 24
- QCL, *see* quantum cascade laser
- QD, *see* quantum dot
- QD-based optoelectronic devices 273–287
- QD LEDs 241, 274, 276, 278
- QD-Schottky devices 284–285
- quantum cascade laser (QCL) 163, 187, 198–199
- quantum dot (QD) 146–147, 205, 239–242, 244–246, 248–250, 252–290, 292–294
- recombination dynamics 260–261, 263, 265
- self-assembled 241, 246–247, 252–253, 264, 268–269, 273–274, 290
- single 240–241, 254, 256–257, 259, 263–264, 288–289, 291–294
- quantum dot photonics 267–271
- quantum light 241, 288, 290
- quantum mechanical Schroedinger equation 17, 19, 21
- quantum wells (QWs) 239, 246–248, 269, 280–281, 316, 325
- quasicrystals 60–61, 63, 67, 72, 74
- QWs, *see* quantum wells
- radio frequency 101, 217, 323
- reactive ion etching (RIE) 101, 220, 319
- RIE, *see* reactive ion etching
- ring resonator biosensors 392, 395–396, 398, 409
- ring resonator sensor arrays 395
- ring resonators 267, 386–387, 390–394, 398–400, 406–409, 412
- planar 391, 393
- SCH, *see* separate confinement heterostructure
- SDLs, *see* semiconductor disk lasers
- self-collimated beams 37–38
- semiconductor disk lasers (SDLs) 281
- semiconductor nanostructures 247
- semiconductor optical amplifiers (SOAs) 7, 269–270, 272, 314
- separate confinement heterostructure (SCH) 323
- Si MOSFETs 354–357, 360–363
- Si photonic chips 268–269

- side-mode suppression ratio (SMSR) 322, 324, 326, 328, 330, 335, 341
- silicon nitride 317, 408
- silicon patterning 319–320
- silicon photonic chips 268, 312, 318, 343
- silicon photonic sensors 410
- silicon photonics 267, 309, 311, 313–314, 318, 337, 343, 411–412
- silicon waveguides 316, 321–322, 324, 329, 394
  - passive 316–317
- single-photon emission 290, 293
- single-photon sources (SPSs) 241, 248, 259, 289–290, 293–294
- SLMs, *see* spatial light modulators
- SMSR, *see* side-mode suppression ratio
- SOAs, *see* semiconductor optical amplifiers
- solar cells 129, 151–152, 157, 266, 273, 276, 283–284, 286–287
  - thin-film 94–95
  - thin-film Si 94–95
- spatial Fourier spectrum 64–65, 72, 95
- spatial light modulators (SLMs) 103
- SPSs, *see* single-photon sources
- superconductivity 375
- TCE, *see* transparent conducting electrode
- TCSPC, *see* time-correlated single-photon counting
- terahertz detection 163
- time-correlated single-photon counting (TCSPC) 291
- transparent conducting electrode (TCE) 286–287
- VCSEL, *see* vertical cavity surface emitting laser
- VCSEL photonics 338–339
- vertical cavity surface emitting laser (VCSEL) 14, 47, 281, 320, 332, 337–339, 341
- Vogel spiral 69–70, 72–74, 76–78, 80–86, 89–91, 93, 104–106, 109–110
  - aperiodic 64, 72, 75, 81, 116
- Vogel spiral arrays 75–76, 82, 104
- Vogel spiral arrays of nanoparticles 59, 73
- Vogel spiral geometry 57, 59, 78, 110, 115
- wavelength division multiplexers (WDMs) 37, 328, 395
- WDMs, *see* wavelength division multiplexers
- whispering gallery 32, 42–43, 183, 197, 223, 394
- ZrO<sub>2</sub> gate dielectric 371–372

Photonics and electronics are endlessly converging into a single technology by exploiting the possibilities created by nanostructuring of materials and devices. It is expected that next-generation optoelectronic devices will show great improvements in terms of performance, flexibility, and energy consumption: the main limits of nanoelectronics will be overcome by using a photonics approach, while nanophotonics will become a mature technology, thanks to miniaturization strategies developed in microelectronics.

Mastering such a complex subject requires a multidisciplinary approach and a solid knowledge of several topics. This book gives a broad overview of recent advances in several topical aspects of nanophotonics and nanoelectronics, keeping an eye on real applications of such technologies, and focuses on the possibilities created by advanced photon management strategies in optoelectronic devices.

Starting from pure photonic systems, the book provides several examples in which the interaction between photonics and electronics is exploited to achieve faster, compact, and more efficient devices. A large number of figures and tables also support each chapter. This book constitutes a valuable resource for researchers, engineers, and professionals working on the development of optoelectronics.



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