

Index

- angle-resolved photoemission spectroscopy (ARPES) 75, 82, 115, 116
- anti-phase domains 24
- ARPES *see* angle-resolved photoemission spectroscopy
- ballistic regime 131, 214
- ballistic transport 66, 101, 112, 134, 137
- bandgap 19, 70, 98, 99, 101
- bands 55, 78, 115, 131, 178, 225, 226, 230–232
- band structure 66, 85, 98, 195, 230
- barrier 44, 159, 186
- basal plane 112, 113, 120–123, 126, 132, 137
- Bernal stacking 117, 118, 120, 130
- Bernal structure 79
- BL *see* buffer layer
- Boltzmann constant 153, 204
- bonds 6, 23, 43, 52, 68, 73, 115, 237
 - chemical 7, 146
 - covalent 40, 115, 150
 - dangling 17, 43, 52, 81, 115, 157, 179
- Bravais lattice 66
- Brillouin zone 85, 131, 195
- buffer layer (BL) 40–42, 55, 56, 73, 78, 81, 82, 84, 85, 100, 101, 115, 116, 122, 134, 146, 159, 228
- CAFM *see* conductive atomic force microscopy
- carbon atom 3, 6, 40, 41, 46–47, 52, 63, 64, 68, 69, 76, 78, 79, 194, 197, 198
- carbon material 1–4, 6, 11, 14, 56
 - nanostructured 168
- carbon nanotube (CNT) 4–6, 14, 148, 168, 177
- carbon onions 6, 14
- carbon revolution 4
- carborundum 8, 42
- carrier concentration 19, 56, 57, 93, 101, 198, 200
- carrier density 125, 198–200, 203, 208, 209
- carrier mobility 75, 93, 99, 112, 185, 199, 209
- chemical vapor deposition (CVD) 4, 22, 26–29, 65, 68, 173, 201, 202
 - plasma-enhanced 124, 173
- chemical wet solutions 179
- chirality 195, 211, 214
- CNT *see* carbon nanotube
- C nucleation 149, 156, 158–160
- conductance 83, 84, 123, 129, 131
- conductive atomic force microscopy (CAFM) 126, 128, 132
- conductivity 21, 124, 195, 204, 206, 207, 209, 210, 213
 - activated 208
 - longitudinal 204
- confinement controlled
 - sublimation method 78
- contamination 12, 229, 236
- Coulomb gap 204, 205
- Coulomb scattering 207
- crystalline substrate 23, 24
- crystal 8, 9, 15, 17, 18, 20, 21, 67, 68, 75, 99, 113, 114, 145, 153, 154, 197

- blue 8
- defect-free 92
- large-area 9
- current transport 112, 113, 123, 127, 134, 137
- CVD *see* chemical vapor deposition
- CVD graphene 175, 177, 178, 180, 188, 202
- CVD reactor 12, 21, 26
- Debye frequency 154
- Debye model 153
- decomposition 13, 14, 27, 29, 40, 42, 44, 46, 47, 49–51, 78
 - high-temperature 65, 177
 - non-congruent 25
 - step-preferential 46
 - thermal crystal 143
- defects 89, 92, 93, 100, 157, 171, 175, 178, 179, 201, 206–208, 225, 226, 229
 - crystalline 21
 - extended 73, 91
 - local 215
- density-functional tight-binding model 40
- deposition 22, 26, 27, 47, 65, 82, 172, 177, 187, 229
 - atomic layer 173
 - dielectrics 137
 - metal 169, 173, 177
 - thin and thick layer 170
 - thin-film 172–174
- device 137, 143, 167, 169, 171, 180, 182, 188, 193, 194, 197, 209, 215, 235, 239
 - biomedical 89
 - buried gate 186
 - complex 171
 - discrete 174
 - epitaxial graphene-based 133
 - high-reliability 186
 - high-voltage 23
 - logic 101
 - sensing 167
 - switching/logic 98
 - top-gated 199
- diamond 2, 3, 7, 8, 11, 19, 170
- diffusion 113, 158, 160, 170
- diffusive regime 112, 210
- Dirac cone 85, 150
- dopant 13, 25, 28
- doping 27, 112, 117, 146, 170, 175, 198–202, 225–227, 229–232
 - chemical 180
 - graphene edges 178
 - n-type 117
 - site competition 23
- Drude conductivity 213
- Drude model 209
- EBL *see* electron beam lithography
- electrical characterization 112, 113, 127, 128, 134, 137
- electroluminescence 9, 68
- electron beam lithography (EBL) 172, 173, 177, 179, 182
- electron diffraction 236
 - low-energy 42, 65, 117
- electron energy loss spectroscopy 113
- electronic device 19, 21, 81, 85, 88, 98, 101, 112, 168, 169, 172, 174, 176, 177, 179, 180, 185
- electronic structure 53, 57, 150, 226, 235
- energy 72, 82, 86, 90, 91, 119, 120, 131, 153, 155, 189, 196, 198, 204, 224, 237
 - acceleration 187
 - binding 189, 236
 - graphene binding 122
 - graphene-formation 149
 - kinetic 77, 236, 240
 - renewable 171
 - stacking 90

- epitaxial graphene 23–25, 66, 67, 111–113, 118–120, 123, 126–128, 132, 135, 136, 178, 179, 227, 228, 231, 232
 - as-grown 115
 - single-layer 198
- etching 18, 21, 95, 96, 98, 99, 148, 149, 172, 178, 179, 185, 229
 - dry 179, 185
 - masked 178
 - plasma 172, 182
 - reactive ion (RIE) 18, 99, 172, 185
 - thermal 18, 21, 95
 - trench 186
 - wet 172
- etching step 21, 169
- Fermi energy 195, 214
- Fermi function 204
- Fermi level 81, 83, 86, 115, 117, 196, 204
- Fermi velocity 195
- FET *see* transistor, field-effect
- FLG *see* graphene, few-layer
- full width at half maximum (FWHM) 55, 118, 119, 225, 229, 231
- furnace 9, 66, 170
 - electric smelting 7
 - vertical RF-heated 71
- FWHM *see* full width at half maximum
- gate 125, 135, 169, 186, 199, 211
- gate bias 124, 135, 146
- gate dielectric 184, 185
- Gaussian distribution 130
- GNR *see* graphene nanoribbon
- graphene 39–42, 53, 54, 63, 64, 77, 78, 85, 86, 89, 90, 100, 101, 126–129, 196–201, 206, 207, 226, 227
 - bilayer 41, 42, 45, 79, 85, 89, 115, 147–150, 155, 156, 228, 232
 - defect-free 53
 - exfoliated 75, 197, 206, 211
 - few-layer (FLG) 42, 64, 65, 75, 80, 84, 145, 180, 181, 226
 - freestanding 150
 - homogeneous 54
 - monolayer 40, 42, 44, 45, 47, 52, 55–58, 64, 76, 82, 85, 86, 93, 115, 127, 128, 130, 145–148, 150, 158, 181, 196, 199–202, 212, 215, 228
 - multilayer (MLG) 42, 53, 54, 64, 80, 115, 145, 151, 181, 189, 198, 228
 - nitrogen-seeded 100
 - quasi-freestanding 201
 - synthetic 178
 - turbostratic 53, 159
 - undoped 195
 - zero-layer (ZLG) 73, 78, 146, 155, 156, 198, 199, 201, 202, 208
- graphene crystallinity 147, 159
- graphene device 202, 209
- graphene film 66, 71, 85, 112, 114, 116, 118, 151, 201, 237
 - low-defect density 65
 - single-layer epitaxial 199
- graphene flakes 85, 150, 176, 184
 - as-grown isolated 176
 - metal-contacted 178
- graphene growth mechanism 40, 42, 43, 45–47, 49, 51, 52, 144, 148, 157, 160
- graphene island 72, 157, 158, 160
- graphene lattice 100, 210
- graphene nanoribbon (GNR)
 - 98–101, 179, 185
- graphene nucleation 44, 47–50, 116

- graphene sheet 4, 23, 24, 66, 145, 146, 148, 151, 155, 159, 160, 179, 225
 - quasi-freestanding 149
 - zero-structural-defect 158
- graphite 1–4, 7–9, 11–13, 40, 42, 63–65, 71, 75, 76
 - bulk 53
 - highly oriented pyrolytic (HOPG) 64, 115
 - single-crystalline 75
- graphite-intercalated compound 65
- graphitization 10, 14, 25, 28, 29, 75, 96
 - argon-assisted 198, 199
 - high-temperature 24
- growth conditions 23, 24, 52, 86, 93, 101, 118, 176, 201
- growth mechanism 40, 42–44, 46, 48, 50–52, 54, 56, 58, 66, 71, 73, 88, 112
- growth process 22, 39, 71–74
- growth rate 22, 44, 93
- growth temperature 52, 78, 80, 87, 88, 201

- Hall bar 123, 178, 179, 193, 200
- Hall coefficient 56
- Hall conductance 196
- Hall quantization 201
- Hall resistance 75, 193, 196, 200–202, 215
- hole 50, 135, 159, 208, 229
- honeycomb structure 40, 64, 78
- HOPG *see* graphite, highly oriented pyrolytic
- hydrogen etching 54, 95
- hydrogen intercalation 101, 115, 199, 208

- junction 28, 83, 84, 113, 127, 129–131

- Landau level (LL) 196, 199, 203, 204
- LAO *see* local anodic oxidation
- Le Chatelier's principle 26
- LEED *see* low-energy electron diffraction
- LL *see* Landau level
- local anodic oxidation (LAO) 182, 183
- low-energy electron diffraction (LEED) 42, 65, 75, 85, 117
- low-pressure chemical vapor deposition 173

- magnetic field 188, 195–199, 201–205, 209, 211, 215
- magnetoresistance 202, 211–213
- MLG *see* graphene, multilayer
- model 47, 90, 151, 152, 158, 160, 238
 - hypothetical 92
 - interfacial growth 151
 - theoretical 154
 - tight-binding 195
 - transmission line 123
 - trench-based 152
 - two-layer 238

- nanostep 118, 123, 126–128
- nonpolar faces 112, 114, 118
- nucleation 44, 48, 49, 78, 149

- pattern 69, 100, 117, 126, 172, 174, 177, 182, 188
 - diffraction 54
 - photoelectron angular distribution 86
 - zigzag 70
- phonon 153, 154, 204, 206
 - flexural 206
 - interface acoustic 208
 - surface polar 208
- photolithography 99, 169, 171, 172, 177

- physical vapor transport (PVT) 9, 10, 12, 14, 68
- PVT *see* physical vapor transport
- PVT chamber 10, 12, 13
- QHE *see* quantum Hall effect
- quantum confinement 99
- quantum corrections 196, 209–211, 213, 215
- quantum Hall effect (QHE) 53, 67, 123, 188, 193–198, 200–202, 206, 209, 215
- quantum well (QW) 83, 84, 194, 204, 213
- QW *see* quantum well
- Raman mapping 231, 232
- Raman shift 119, 224
- Raman spectrum 55, 56, 178, 179, 224, 227, 229, 231, 232
- resistance 18, 91, 111, 123, 126–128, 183, 194, 203, 209
 - channel 124
 - chemical 18
 - graphene ribbon 183
- resistivity 203, 204, 206, 209, 213, 214
- RIE *see* etching, reactive ion
- scanning capacitance microscopy (SCM) 135, 136
- scanning transmission electron microscopy (STEM) 111, 113, 119–121
- scanning tunneling microscopy (STM) 67, 75, 85
- scattering 206, 208, 210, 212, 213
 - impurity 209
 - inelastic 224
 - Raman 178, 224
 - short-range 210
 - spin-orbit 210
- Schottky barrier 127
- Schottky diode 175
- SCM *see* scanning capacitance microscopy
- semiconductor 2, 8, 9, 64, 68, 112, 143, 168–170, 173, 194–196, 215
- Shubnikov–de Haas oscillations 75, 197, 212
- silicon sublimation 46, 64, 152, 153, 155, 176
- spectrum 55, 56, 118, 121, 229, 236–238, 240
- SPL *see* scanning probe lithography
- SPM *see* scanning probe microscopy
- STEM *see* scanning transmission electron microscopy
- step 43, 44, 50–52, 73, 90–92, 119, 128, 152, 154–158, 175, 176, 209
 - arrowed 43
 - atomic 43, 58
 - bilayer-height 73, 91
 - nanoribbon growth 99
 - single-atom 152
 - substrate 83, 123, 124, 129, 130, 133, 147
 - surface 48, 51, 147, 209
- step bunching 73, 80, 89–92, 96, 101, 119
- step bunching mechanism 90, 99
- step edge 43–45, 47, 71, 73, 78, 80, 81, 152–156, 158, 160, 209, 231, 232
- step height 54, 55, 83, 90, 91, 128, 129, 176, 209
- STM *see* scanning tunneling microscopy
- strain 189, 225, 227, 229, 230, 232
- sublimation 65, 66, 68, 77, 78, 146–149, 151–156, 158–160
 - non-uniform 73, 91
 - thermal 168
- sublimation rate 75, 80, 149, 158

- substrate 23, 24, 27, 28, 54, 55, 66, 67, 85, 86, 89, 90, 95–97, 114, 118, 119, 134, 145, 146, 150, 151, 174, 175, 237, 238
 - mechanical 174
 - on-axis 118, 186, 209
 - polar 208
 - virgin 118–120
- technique 4, 18, 22, 64, 65, 168, 173, 177, 180, 182, 183, 185, 197, 200, 208
 - back-gate 199
 - carbide-derived carbon 14
 - dry or wet 172
 - hybrid 201
 - parallel patterning 171
 - scanning probe 126
 - seeded sublimation 21
- terrace 43, 50, 71, 72, 90, 91, 117, 118, 128, 129, 132, 133, 135, 136, 150, 152, 153, 156, 157, 176, 232
 - basal plane 132
 - micrometer-wide 118, 176
 - step-less 46
- thermal decomposition 39–43, 64, 66, 68, 70, 74–76, 90, 100, 113, 114
- TLM *see* transmission line model
- transistor 171, 186–188
 - basic 174
 - field-effect (FET) 123–125, 157, 169, 185
 - gated 185
 - nanoribbons-based 185
 - top-gated graphene 99
- transmission line model (TLM) 113, 123
- UHV *see* ultrahigh vacuum
- ultrahigh vacuum (UHV) 26, 53, 65, 75, 76, 147, 148, 156
- variable range hopping 204
- XPS *see* X-ray photoelectron spectroscopy
- X-ray photoelectron spectroscopy (XPS) 232, 235–237, 239, 240
- Young's modulus 19
- zero-bias photo-responsivity 100
- ZLG *see* graphene, zero-layer

“This book offers a comprehensive understanding of epitaxial graphene and includes excellent examples on the synthesis and characterization techniques of graphene for device fabrication. In my opinion, this exclusive work will be extremely useful for students and researchers working in the field of device application of graphene.”

Dr. Rakesh Joshi

University of New South Wales, Australia

This is the first book dedicated exclusively to epitaxial graphene on silicon carbide (EG-SiC). It comprehensively addresses all fundamental aspects relevant for the study and technology development of EG materials and their applications, using quantum Hall effect studies and probe techniques such as scanning tunneling microscopy and atomic-resolution imaging based on transmission electron microscopy. It presents the state of the art of the synthesis of EG-SiC and profusely explains it as a function of SiC substrate characteristics such as polytype, polarity, and wafer cut as well as the in situ and ex situ conditioning techniques, including H_2 pre-deposition annealing and chemical-mechanical polishing. It also describes growth studies, including the most popular characterization techniques, such as ultrahigh-vacuum, partial-pressure, or graphite-cap sublimation techniques, for high-quality controlled deposition. It includes relevant examples of fabrication processes and performance of devices along with theoretical modeling and simulation studies that are helpful in the fundamental comprehension of EG-SiC substrates and their potential use in electronic applications.



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