

Index

- $[A_1, A_2]$ 85
 Δ^* 73, 134, 146
 $\epsilon(\Omega)$ 247, 256
 $\gamma_1 \equiv \gamma_2$ 71
 $\kappa(z)$ 87
 $\kappa R(X, \Omega)$ 182
 $\lambda(\tau)$ 220, 263
 $\Lambda(G)$ 83
 $\Lambda_0(G)$ 87
 $\Omega(G)$ 83
 $\Pi_1(X, p)$ 71
 ρ_{01} 220
 $\rho_{a,b}$ 173, 219
 ρ_{F^*} 115
 ρ_{pq} 173
 $A(\Omega)$ 250
- accidental cycle 111
 accidental vertex 107
 accumulation points 191
 affine maps 8
 angle condition 112, 115
 arc-wise connected space 72
 asymptotic path 76
 asymptotic value 76
 axis 47
- Blaschke product 64, 210
 Blaschke product 65
 Bloch condition 178
 Bloch constant 178
 Bloch subdomain 178
 bounded cross ratio property 248
- $c\kappa_X^\Omega$ 196
 $c\kappa$ -condition 196
 $c\kappa$ -Lipschitz subdomain, $c\kappa$ -Lip 196
 Carathéodory Bloch subdomain, c-Bloch subdomain 184
 Carathéodory contraction constants, global, infinitesimal 183
 Carathéodory density, generalized 166
 Carathéodory density, standard 163
 Carathéodory Lipschitz subdomain, c-Lip subdomain 183
 Carathéodory pseudo-distance 168
 caratheodory density 163
 Caratheodory Lipschitz domain 183
 Caratheodory-Bloch domain, c-Bloch domain 184
 Caratheodory-Lip, c-Lip domain 184
 Cauchy-Morera theorem 55
 Cauchy-Riemann equations 10
 collar 148
 commutator 85
 compact subset of a topological space 69
 complete metric space 31
 conformal 9
 conformal density 139
 conformal invariant 15, 141
 conformally equivalent 59
 congruent 1
 connected topological space 69
 constant curve 71
 contraction properties, infinitesimal and global 172
 convex 27

- coordinate chart 69
- cover 74
- covering space 69, 74
- $cR(X, \Omega)$ 184
- cross ratio 15, 38
- curve 6
- cycle relation 111
- cycle transformation 111

- degenerate subdomain 195
- Denjoy-Wolff theorem 192
- density 11
- Dirichlet domain 101
- discontinuous group 83
- discrete group 24

- elementary group 84, 90
- elliptic cycle 111
- elliptic function 97, 258
- elliptic integrals 96, 145
- elliptic pencil 18
- elliptic transformations 20, 50
- ϵ -bounded 248
- equivalent densities 245
- equivalent metrics 240
- essential singularity 54
- Euclidean density 28
- Euclidean geometry 6
- Euclidean plane 5
- extremal length 144

- F^* 115
- free homotopy 73
- free side 113
- free vertex 107
- Fuchsian group 25, 89
- fundamental domain 98, 99
- fundamental group 71
- fundamental polygon 108, 109

- $G_{a,b}$ 91, 258
- Gaussian curvature 141
- generalized caratheodory density 166
- generalized Kobayashi density 155
- geodesic ray 35
- geodesic segment 6, 36, 128
- $gl_{\kappa}(X, \Omega)$ 180
- $gl_{\Omega}(f), gl_X(f)$ 174
- $glc(X, \Omega)$ 183
- global contraction 56
- global contraction constants 174, 176
- global contraction property 172

- Hausdorff space 68, 69
- $\mathcal{H}\downarrow(X, Y)$ 153
- holomorphic map 53
- homotopic 70
- homotopic curves 59, 71
- homotopy class 71
- horoball 48
- horocycle 52
- Hurwitz theorem 58
- hyperbolic area 45
- hyperbolic cycle 112
- hyperbolic density 33
- hyperbolic domain 124
- hyperbolic geodesic 35
- hyperbolic line 35
- hyperbolic metric 10
- hyperbolic metric in the disk 32
- hyperbolic pencil 18
- hyperbolic plane 9
- hyperbolic polygon 39
- hyperbolic reflection 51
- hyperbolic rotation 50
- hyperbolic space 82
- hyperbolic transformations 20
- hyperbolic triangle 39
- hyperbolically convex 101

- $i(\Omega, z), i(\Omega)$ 253
- ideal cycle 111
- ideal polygon 39
- ideal triangle 39
- ideal vertex 107, 111, 113
- infinitesimal contraction 56
- infinitesimal contraction constants 174, 176
- infinitesimal contraction property 172
- infinitesimal strict contraction 176, 177
- injectivity radius 253
- inversion 8
- involution 7
- isolated singularity 53
- iterated function system, forward 191
- iterated function systems, backward 191, 195
- iterated function systems, degenerate 195

- Jacobi, C. 96, 261

- Kleinian group 25
- Kobayashi Bloch subdomain, κ -Bloch subdomain 182

- Kobayashi contraction constants 180
 Kobayashi density 154
 Kobayashi Lipschitz subdomain, κ -Lip subdomain 180
 Koebe domain 134
 Koebe-1/4 theorem 67
- $l(\Omega)$ 254
 $l\kappa(X, \Omega)$ 180
 $l_\Omega(f), l_X f$ 174, 175
 l_Ω, l_X 175
 $lc(X, \Omega)$ 183
 lift, local lift 74
 limit functions 201
 limit set 83
 line 6
 Liouville theorem 55
 Lipschitz domain 177
 Lipschitz subdomain, Lip-subdomain 177
 local uniform convergence 58
 locally finite 105, 106
 loxodromic transformations 20
- Möbius group 14
 Möbius transformations 14
 marking generators 142
 Markowsky, G. 162, 171
 Maskit, B. 151
 maximum principle 55
 meromorphic 53
 metric space 6
 modular group 262
 modulus of a rectangle 145
 modulus of a torus 142
 modulus of an annulus 147
 monodromy 76
 monodromy group 97
 monodromy theorem 77
 Montel's theorem 59
 multiplier 20
- normal family 58
- $O(G)$ 84
 orbifold 89
 orbit 84
- pair density 220, 240
 parabolic cycle 112
 parabolic transformations 21
 Poincaré polygone theorem 115, 123
- Poincaré, H. 97
 pole 54
 product curve 70
 pseudo-metric 168
 $PSL(2, C)$ 23
 $PSL(2, R)$ 23
- $Q(\Omega)$ 249
 quasi-doubly periodic 262
 quasi-hyperbolic density 245
 quasi-hyperbolic density 245
 quotient surface 88
- $R(\Omega)$ 250
 $R(X, \Omega)$ 178
 radial projection 34
 rational map 63
 ray 6
 reflection 7, 51
 regular covering 75
 regular set 83
 relator in a group 111
 removable singularity 54
 Riemann map 62
 Riemann mapping theorem 60
 Riemann sphere 12
 Riemann surface 68, 69
 rigid motions 7
 rotations 7
- scaling map 8
 Schwarz lemma 55
 Schwarz reflection principle 63
 Schwarz-Pick lemma 56
 separating annulus 249
 side-paired polygon 107
 side-pairings 107
 similarities 8
 simply connected 59, 72
 smooth covering space 74
 smooth surface 69
 spherical distance 30
 stereographic projection 12
 strict contraction 176, 177
 strictly uniform 175
- theta function 222, 261
 topological rectangle 144
 topological space 68
 trace 18
 translation length 47

Index

271

- translations 7
- trivial group 72

- uniformization theorem 81
- uniformly bounded cross ratio 248
- uniformly perfect domain 245
- uniformly thick domain 254
- univalent map 67
- universal cover 60

- universal covering group 80
- universal covering space 77, 80
- upper-semi-continuous function 160

- $V(G)$ 87

- Weierstrass \wp -function 259
- Weierstrass theorem 58