

Index

- *-operator, 32
- C^∞ -function, 39
- C^∞ -hermitian invertible sheaf, 36, 102, 155
- C^∞ -hermitian locally free coherent sheaf, 155
- C^∞ -hermitian locally free sheaf, 36
- C^∞ -hermitian metric, 40, 155
- C^∞ -map, 39
- L^2 -norm, 2
- \mathbb{Q} -effective, 186
- $\bar{\partial}$ -Laplacian, 32
- $\bar{\partial}$ -harmonic forms, 32
- ∂ -Laplacian, 32
- ∂ -harmonic forms, 32
- $\partial\bar{\partial}$ -lemma, 33
- d -Laplacian, 32
- d -harmonic forms, 32
- h -graded R -module, 190

- Adjunction formula, 113
- admissible, 98
- admissible C^∞ -hermitian invertible sheaf, 102
- ample, 85, 185
- analytic torsion, 174
- Arakelov divisor, 102
- Arakelov metric, 113
- arithmetic i -th Chern class, 172
- arithmetic Bogomolov inequality, 243
- arithmetic characteristic class, 172
- arithmetic Chow group, 69, 156
- arithmetic Chow group of Green type, 156
- arithmetic cycle of codimension p , 155
- arithmetic cycle of dimension l , 155
- arithmetic cycles of codimension one, 69
- arithmetic degree, 69, 73, 163
- arithmetic first Chern class, 72, 103, 163
- arithmetic Hilbert-Samuel formula, 180, 235
- arithmetic intersection number, 105
- arithmetic Nakai-Moishezon's criterion, 225
- arithmetic principal divisor, 69, 101
- arithmetic projection formula, 160
- arithmetic Riemann-Roch formula, 175

- arithmetic Siu's inequality, 210
- arithmetic variety, 155
- arithmetic volume, 197

- big, 186
- Bogomolov inequality, 237
- Bogomolov's conjecture, 249, 265
- Bott-Chern secondary characteristic form, 167
- Brunn-Minkowski theorem, 45

- canonical height, 257
- canonical Kähler form, 112
- canonical metric, 98
- Cauchy-Riemann operator, 35
- characteristic form, 166
- compactification, 103
- complex conjugate point, 142
- complex point, 142
- connection, 35
- Continuity of arithmetic volume function, 204
- continuous hermitian invertible sheaf, 155
- continuous hermitian locally free coherent sheaf, 155
- continuous hermitian metric, 155
- convex body, 41
- convex lattice, 43
- convex set, 41
- cubic metric, 264
- cubic theorem, 258
- current of Dirac type, 145
- current of type (p, q) , 145
- curvature, 36
- cycle of codimension p , 146
- cycle of dimension l , 146

- Deligne's pairing, 90
- determinant bundle, 30
- distorsion function, 212
- Donaldson's Lagrangian, 240
- dual metric, 4
- dual norm, 4

- effective, 186

- equidistribution theorem, 261
- existence theorem of small sections, 209
- Faltings metric, 119
- Faltings' Riemann-Roch theorem, 120
- Faltings' theorem, 249
- first Chern form, 36
- fundamental form, 31
- Generalized Hodge index theorem, 208
- generic, 261
- generic resolution of singularities of X , 141
- generically smooth, 155
- Green Current, 146
- Green function, 95
- Gromov's inequality, 175
- group of arithmetic divisors, 101
- Haar measure induced by an inner product, 41
- height function, 254
- Hermite-Einstein metric, 239
- hermitian \mathbb{Q} -invertible sheaf of real type, 202
- hermitian R -module, 71
- hermitian R -module of pure rank r , 71
- hermitian form, 71
- Hodge identities, 33, 228
- infinite fiber, 103
- integral order, 64
- invariant form, 263
- Jacobian variety, 124
- Kähler form, 33
- Kähler manifold, 33
- Künneth's formula in terms of harmonic forms, 35
- Lang's conjecture, 249
- Lang-Bogomolov conjecture, 249, 269
- lattice, 42
- Mahler's inequality, 44
- meet properly, 146
- metric, 2
- metric of Deligne's pairing, 100
- Minkowski's theorem, 41
- Mordell-Weil theorem, 259
- Néron-Tate height, 257
- naive height function, 250
- Nakano's identity, 228
- nef, 186
- Neron-Tate height pairing, 258
- norm, 1
- norm of ϕ with respect to $Y \rightarrow X$, 16
- norm of the homomorphism, 4
- normed finitely generated \mathbb{Z} -module, 55
- Northcott's theorem, 252, 256
- of Green type, 155
- of pure rank r , 66
- of real type, 71, 143
- order, 64
- Poincaré bundle, 125
- Poincaré-Lelong formula, 36, 97
- polar dual set, 44
- polystable, 237
- positive, 36, 40
- positive definite, 71
- positive semidefinite, 227
- principal divisor, 20, 23, 89
- product formula, 65
- product of Green functions, 98
- projection formula, 149
- projection formula for arithmetic cycles, 159
- projective arithmetic variety, 155
- pull-back, 20
- push-forward, 20
- push-forward of arithmetic cycle, 156
- push-forward of currents, 145
- push-forward of cycle, 148
- quasi-basis, 29
- Quillen metric, 174
- quotient metric, 2
- quotient norm, 1
- real point, 142
- regular element, 6
- Riemann-Roch formula over a reduced order, 75
- seminorm, 1
- semipositive, 36, 40
- semistable, 237
- semistable curve, 120
- slope, 237
- small section, 185
- stable, 237
- strictly small section, 185
- submetric, 2
- subnorm, 1
- symmetric, 41, 258
- system of bases, 28
- system of quasi-bases of the exact sequence, 29
- theta divisor, 125
- vertically ample, 185
- vertically nef, 186
- vertically nef model, 252
- volume difference, 83
- volume exact, 83
- Weil's reciprocity law, 21

- Weil's reciprocity law in complex geometry,
150
- Weil's reciprocity law on arithmetic
surfaces, 90