Index

6j-symbols, 347
G-cohomology, 60
G/G-model, 60
W-algebra, 137
W-cohomology, 59
Askey-Wilson polynomials, 380, 411
Bethe Ansatz, see Thermodynamic..., 399, 401, 409, 412
Bloch electrons, 399
Bloch walls, 369
Bloch wave function, 399, 400, 402
Boltzmann weights, 165, 167, 356
Bosonization, 119
Branched polymers, 77, 100, 101
BRST, 235, 239, 241
charge, 286
cohomology, 236, 237
operators, 262
quantization, 59
symmetry, 155, 268
BRST complex, 305
c-theorem, 274
Calabi-Yau manifold, 23, 24, 261, 263, 264, 267, 270
Calogero-Sutherland
Hamiltonian, 16
model, 14, 15
Cantor set, 399, 401
Causality, 185
CFT, see Conformal field theory
Charge conservation, 380
Chern-Simons, 31, 42
Chern-Simons theory, 23, 24
Chiral fields, 25
Circulation, 193
Clusters
Fortuin-Kasteleyn, 102
Ising, 101
Complex projective space, 138
Confinement
oblique, 285
Conformal factor, 1
Conformal field theory, 119, 123, 124, 126, 137, 233, 245, 261
integrable models, 273, 335
perturbed, 335, 361, 364
Conserved charges
local, 274
Continuum limit, 1, 76, 165–168, 178, 180
Corner transfer matrix, 359
Correlation functions, 242, 286
Cosmological constant, 234, 236, 244
Coulomb gas, 345, 352
Critical curve, 1
Diffeomorphism, 42
Dilogarithm sum rules, 273, 281
Discrete states, 306
Division algebras, 96
Duality
$R \rightarrow 1/R$, 119
Dynamical lattice, 81
Dynamical triangulation, 5
Dynkin diagrams, 273
Effective action, 1
Eight-vertex model, 350, 357
Elliptic functions, 356
Euler characteristic, 55, 101, 103, 114, 115, 173, 234, 244, 269, 270
Exchange algebra, 380
Extrinsic geometry, 138
Feynman diagrams, 72
Finite-size scaling, 106
Fluid dynamics, 193
Fock space, 59
Fractal, 369
properties, 412
structure, 101
Fractional statistics, 11
Free energy, 346, 358
Gauge theory
q-deformed, 45
Gauss's law, 290
Gaussian model, 344, 352
Gervais-Neveu quantization, 380
Ghosts, 239, 308
Ground ring, 65
Harmonic superspace
and twistors, 87
Heisenberg algebra, 312
Hermitian matrices, 72
Hilbert space, 240
Hofstadter problem, 400, 413
Infrared dynamics, 1
Instanton, 263
approximation, 262, 268
supersymmetric, 96
Integrable models, 138, 273
four-dimensional, 87
Supersymmetry, 257
Ising model, 81
and string theory, 100
in 3 dimensions, 100
surface tension, 113
Jones polynomial, 51
Kähler potential, 141, 265, 266
Kazama Suzuki models, 352
KdV equation, 137
Knizhnik-Zamolodchikov equations, 372
Kodaira-Spencer theory, 23, 270, 271
Kolmogorov, 194
KP hierarchies, 137
Landau-Ginzburg, 241, 336, 350, 364, 367
Large $N$, 119
limit, 119
Lattice gauge theory, 165, 166, 176,
see Loop equation
heat kernel action, 166
strong coupling, 167
Lattice theory, 77
Lie algebra, 60, 137, 305
Light cone, 71, 186
Hamiltonian, 73
quantization, 73
Links, nodes and blobs picture, 111,
see Percolation
Liouville theory, 138, 234, 236, 239, 379
Liouville exponentials, 379
operator approach, 379
Localization, 400
Loop average, 81
Loop equation, 165, 168, 176, 177, 180, 181, 194, 200, 205
Loop space, 186
Markov trace, 346
Massless scattering, 363
Matrix models, 39, 71, 72, 81, 125, 216, see Navier-Stokes equation, 234, 235, 243
fermionic interpretation, 84
Green's functions, 72
Minimal models, 59, 241, 305
coupling to gravity, 305
Mirror symmetry, 263, 271
Moduli space, 234, 243, 244, 264–271
Monodromy matrix, 399, 406
Monte-Carlo simulations, 44, 103
N=2 Superconformal symmetry, 305
Navier-Stokes equation, 193, 194, 218
One-sided representations, 380
Order parameter, 295
Orthogonal polynomials, 82, 399, 401, 411
Painlevé, 368
Penner model, 244
Percolation, 102, 106, 339
bond, 102
Physical state, 61
Polymers, see Branched polymers, 349
Potts model, 340

QCD
string, 119, 167
two dimensional, 152, 165, 285
QCD string
two dimensional, 152
Quantum gravity, 1
Quantum group, 149, 379, 399–401, 403, 405–411, 413, 415
$SL_q(2)$, 46
representations, 346, 365
truncation, 346, 347, 366
universal $U_q(sl(2))$ R-matrix, 380

Random surfaces, 72, 78, 101
Regge calculus, 42
Renormalization group, 273
Blocked spins, 114
Representation theory, 312
Resolution, 61, 305
Riemann surfaces, 137, 234, 244, 261, 265
Rigid string, 153
topological, 153
RSOS models, 343, 354, 355
S-matrix
factorizable, 274
Sausage model, 282
Scaling behavior, 4
Scaling laws, 101, 103, see Finite-size scaling, 203
Scaling limit, 360, 361
Scattering matrices, 362
Self-avoiding surfaces, 100, 101
Self-dual Yang-Mills
Lagrangian, 94
Self-duality
in extended superspace, 91
Semi-infinite cohomology, 305
Semions, 18
Sigma models
O(3), 282
on the Normal Forms, 282
sausage, 282
topological, 286
Signature, 300
Six-vertex model, 78, 344, 363
Spin chain, 11
Spinons, 17, 18
Stress tensor
vanishing, 92
String field theory, 130
String theory, 185, 233, 261, 263, 264, 286
and Ising model, 100
causality in, 185–190
One-dimensional, 234
Polyakov, 73, 142
topological, 285
Superconformal symmetry, 261
Supercurrents
extended supersymmetry, 92
Supergravity, 97
Superspace
analytic, 93
Supersymmetry, 238
$N = 2$, 335, 353, 361
breaking, 349, 367
super self-duality, 87
Tachyon, 77, 100
TBA, see Thermodynamic Bethe Ansatz
Temperley-Lieb algebra, 341
representation, 341
Thermodynamic Bethe Ansatz, 273, see Y-system, 363
magnonic, 276
on $G \times H$, 277
pseudoenergy, 276
universal form, 276
Three-point function, 380
Toda hierarchy, 138
Topological
A and B models, 262
conformal field theory, 25
correlation functions, 24
cosets, 305
field theory, 261, 263
gauge theory, 288
gravity, 26, 242
lattice models, 339
model, 23, 24
rigid string, 153
sigma model, 32, 262, 286
sigma models, 153
string theory, 23, 24, 34, 264, 285
theories, 338, 353
theory, 234, 235, 237, 286
Topological theories, see Twisted algebra
Trace anomaly, 2
Transfer matrix, 12, 114
Triangulated surfaces, 72
Turaev-Viro invariant, 51
Turbulence, 194
Twisted algebra, 352
Twisted cohomology, 60
Twistor transform
supersymmetric, 93
Twistors
and harmonic spaces, 87
Two-matrix model, 81
Verma module, 61
Vertex models, 78, 344
Vertex operators, 380
Coulomb gas representation, 380
Vertex/IRF correspondence, 347, 366
Virasoro algebra, 137, 305
Vorticity, 194
W-algebra, 59, 305
W-gravity, 59
Ward identity, 265
Wess-Zumino action, 2
Y-system, 278
periodicity, 281
Yang-Baxter equation, 12, 46, 356
Yang-Mills theory
in 2 dimensions, 119
self-duality equations, 87
symmetry transformations, 94
topological, 152
two dimensional, 152
Yangian, 12, 13