

## INDEX

- Abundance,
  - light elements, 394
  - metal, 79
- Accretion
  - mechanism, 348
- Adler-Bell-Jackiw
  - anomaly, 417
- Age of the Universe, 69, 71, 81
- Algebra
  - supersymmetric, 2
- Anomaly
  - Adler-Bell-Jackiw, 417
  - factorizable, 442
  - non-abelian, 118
- Anomaly Constraint
  - Konishi, 28, 29, 37, 38
- Anti-de Sitter
  - universe, spacetime, 97, 102, 103
- Bag Model, 172
- Baryon
  - asymmetry, 73, 74
- Bianchi
  - identity, 433
- Borel
  - transform, 175, 176, 187, 188, 191
- Bottomium, 191
- Boyer
  - axis, 96
- Cabibbo
  - mixing, 414
- Calabi-Yau
  - manifold, 141, 146, 153, 158
- Charmonium, 190
- Chern
  - character, 135
  - class, 141
  - form, 116
- Chern-Simons
  - form, 117-119, 123, 136, 138, 157
- Coboundary, 435, 438
- Cocycle, 438
- Cohomology
  - Problem (local), 434, 435, 437, 438
- Condensate
  - gluon, 173, 187
  - quark, 173, 185
- Convexity
  - properties of potential, 218
- Coulomb
  - potential, 215
  - wave functions, 217
- Covariant derivative
  - Lorentz, 47
- CP-violation, 6, 7, 9
- Curvature, 49, 59
- Dixon-Stora
  - chain, 436
- Double beta decay, 360, 362
- Eddington
  - limit,  $\text{Spi}$  346, 348, 349
- Elliptic interpretation, 96, 97, 101-103
- Euler
  - characteristic, 146
- Families
  - fourth, 428
  - lepton, 248
- Feynman
  - $x$ -values, 233-236, 316
- Flat directions, 25
- Fock
  - space (in curved space), 99
  - vacuum, 103
- Fourth quark family, 428
- Generators of SUSY, 390, 391
- Ghost field, 434
- Gluino, 9-18, 407
- Gluon
  - condensate, 173, 187
- Goldstino, 4, 5
- Goldstone
  - bosons, 417, 423
- Gravitino, 5

Halos  
   galactic, 87  
 Hartle-Hawking  
   propagator, 99  
 Hawking  
   temperature, 99  
 Hierarchy  
   problem, 403  
 High  $p_T$   
   electron, 309  
   particle, 311  
 Higgs  
   bosons, 2  
   doublets, 406  
   mechanism, 390  
   scalars, 395  
   sector, 387  
 Higgsino, 6, 89  
 Hodge  
   number, 145  
 Hubble  
   parameter, 75  
 Hydrogen  
   spectrum, 215  
  
 Index  
   theorem, 134  
 Inflation  
   new scenario, 84  
  
 Jet core  
   multiplicity, 305  
  
 Kähler  
   manifold, 136, 140, 141, 145  
   potential, 65, 86, 87, 157, 158,  
     159, 161  
 Kähler-Weyl  
   invariance, 62  
 Kaon  
   system, 413, 419, 421, 424,  
     426  
 Konishi  
   anomaly constraint, 28, 29, 37,  
     38  
 Kruskal  
   coordinates, 96  
  
 Landshoff  
   contribution, 202, 203  
 Lepton  
   families, 248  
 Light element  
   abundance, 394  
 Local cohomology  
   problem, 434, 435, 437, 438  
 Long distance  
   contribution, 427  
 Lorentz  
   covariant derivative, 47  
  
 Majorana  
   condition, 121, 124  
 Manifold  
   Calabi-Yau, 141, 146, 153, 158  
   Kähler, 136, 140, 141, 145  
 Mass-to-light  
   ratio, 69, 70  
 Matter  
   superfield, 22  
 Metal  
   abundances, 79  
 Mixing  
   Cabibbo, 414  
  
 Nambu-Goldstone  
   realization, 417  
 Nambu-Goto  
   string, 238  
 Neutrino  
   flavor, 78  
   mass limits, 371, 383  
 Nucleosynthesis, 76, 77, 79  
  
 Operator product expansion, 176, 178  
  
 $P_T$   
   high  $p_T$  electron, 309  
   high  $p_T$  particle, 311  
   increase, 337  
 Parton  
   center of mass scattering angle,  
     295  
 Photino, 4, 5, 9-11, 16, 17  
 Polynomial  
   invariant, 435, 437, 438  
 Pontrjagin  
   class, 135  
 Potential  
   model, 172  
 Principal bundle, 433  
 Proton  
   lifetime, 389  
  
 Quark-antiquark  
   potential, 237  
 Quark-diquark  
   system, 234, 237, 238  
 Quarkonium, 232  
  
 Regge  
   trajectories, 232  
 Reissner-Nordstrom  
   black holes, 97  
 $\rho$   
   trajectory, 232  
 Robertson-Walker  
   metric, 102  
 Roof genus, 135

Scattering  
   angle, 295  
   parton center of mass, 295  
 Sliding scale  
   models, 65  
 S-quarks, 407, 408  
 Sudakow  
   corrections, 201-204  
 Sum rules, 172, 175, 176, 183,  
   187, 188  
 Sun  
   standard model, 381  
 Superfield  
   matter 22  
 Superpotential, 21, 22  
 Supersymmetry  
   algebra, 2  
   generators, 390, 391  
  
 Temperature  
   center of the Sun, 381  
 Top quark, 387  
 Torsion, 49, 54, 55, 59  
 Transverse energy  
   large, 285, 288, 291, 323  
  
 Vacuum angle, 21  
  
 Ward  
   identity, 25, 26, 33, 37  
 Weinberg  
   angle, 414, 415  
 Weyl  
   conformal invariance, 106, 107  
   condition, 121, 124  
 Wilson  
   coefficients, 174-178, 180, 183  
 Wino, 4, 5, 9-11, 16, 17  
 WKB  
   approximation, 216  
 W-mass, 302, 303  
   determination, 239, 241  
  
 Z-mass, 302, 303