

# INDEX

- Abnormality, of weak currents, 369  
Additivity, 32  
Algebra, representation of, 83  
star, 25, 81  
Ancestor, 149  
Angle, Cabibbo, 281  
Anticommutation relations, 424  
Approximation, impulse, 329, 362, 380  
narrow resonance, 106  
Argand loop, 148, 150  
Automorphism, 45, 53, 87  
inner, 55  
Background integral, 107, 109  
Baryon-antibaryon scattering, 163, 170  
Bilinear form, 13, 14  
Bootstrap, 121, 131  
Borchers class, 24, 25  
Bose statistics, 18, 28, 60  
Boson, Goldstone, 453, 460, 471  
intermediate, 276, 282, 353  
Broken symmetry, 441, 450, 452  
  
Cabibbo angle, 281  
 $C^*$ -algebra, 37, 81  
Canonical commutation relations, 35  
Charge radius, 279, 315  
Chiral transformation, 451, 486  
Class, Borchers, 24, 25  
Cluster property, 47  
Commutant, 82  
Conformal transformation, 461, 463  
Conservation identity, 468  
Coupling constant, 280, 282, 295  
Covariant derivative, 476  
Co-vector, 420  
Curvature, tensor, 470, 491  
Cutoff, 340, 349, 358  
Cuts, 107, 108, 118  
CVC, 290, 370  
  
Daughters, 151, 175  
Decay, double beta, 297, 301, 360, 368  
  kaon, 344, 352, 354  
  muon, 276, 297, 304  
  pion, 294  
Degeneracy, 97, 124, 130, 159, 236  
  exchange, 125, 132, 136, 156, 173, 221  
Derivative, covariant, 476  
Diffraction scattering, 127, 195  
Dimension, of field, 463  
Disjoint representation, 51  
Divergence, 285, 340, 350  
Double beta decay, 297, 301, 360, 368  
  
Duality, 96, 100, 109, 118, 146, 157, 168, 178  
  global, 115  
  for rings, 33, 35  
Duality diagram, 164, 203, 208  
  
Effective action, 441, 445  
Einstein causality, 16, 33  
Einstein transformation, 464, 467, 475  
Endomorphism, 87  
  localized, 53  
Energy-momentum tensor, 460, 470  
Equal time commutation relations, 337, 348, 362  
Equivalence, strong local, 49, 51, 54  
weak, 425  
Exchange degeneracy, 125, 132, 136, 156, 173, 221  
Exotic states, 132, 171  
  
Factor, 86  
  form, 285, 337, 375  
Factorization, 108, 134, 158, 194, 216, 236  
Faithful representation, 84  
Fermi statistics, 18, 28, 60  
FESR, 96, 109, 120  
Field algebra, 23  
Fierz equations, 489  
First class current, 290  
Fock representation, 428, 432  
Form factor, 285, 337, 375  
  
Gauge group, 65, 74  
Gell-Mann mechanism, 145, 194  
Ghost, 192, 230, 242  
Global duality, 115  
GNS construction, 85  
Goldstone boson, 453, 460, 471  
Goldstone theorem, 449  
Gravitational field, 463, 490  
  
High energy behavior, 107, 151  
  
Impulse approximation, 329, 362, 380  
Infinite tensor product, 419, 421  
Inner automorphism, 55  
Integral, background, 107, 109  
Interference model, 120  
Intermediate boson, 276, 282, 353  
Intertwining operator, 67  
Irreducibility, 33  
Isospin transformation, 451  
  
Kaon decay, 344, 352, 354  
Kaon scattering, 99, 127, 132, 138, 187

- Legendre transformation, 443, 448,  
     454  
 Lepton conservation, 291, 302, 306  
 Linear trajectory, 123, 202  
 Line reversal, 140, 142, 227  
 Locality, 16, 33, 72  
 Localized endomorphism, 53  
 Loop, 242, 244  
  
 Magnetic moment, of neutrino, 311  
 Majorana field, 306  
 Maximality, 34  
 Muon decay, 276, 297, 304  
  
 Narrow resonance approximation, 106  
 Net, 34  
 Neutrino mass, 311  
 Neutrino-nucleon collisions, 326, 379,  
     392  
 Nonet structure, 133, 136, 189  
 Nonlinear realization, 451, 454, 486  
 Nonsense choosing, 143, 146  
 Normality, 288, 370  
  
 Octet structure, 135, 137  
  
 Parastatistics, 71  
 Parity doubling, 200  
 Partial state, 46  
 Peripheral, 119  
 Phenomenological field, 445, 448  
 Pion decay, 294  
 Pion-nucleon scattering, 113, 116,  
     120, 128  
 Pion-pion scattering, 133, 164, 173,  
     182, 195  
 Poincare invariance, 8, 45  
 Polarization, 141  
 Pomeranchuk trajectory, 127  
 Primitive causality, 17, 32  
 Propagator, 131, 235, 237, 444  
  
 Quark, 164, 167, 240, 274, 327,  
     343  
 Quasilocal, 44  
  
 Radius, charge, 279, 315  
 Regge pole, 97, 107, 115, 129, 141,  
     150, 156  
 Relatively local, 24  
 Representation, 424, 427, 431  
     of algebra, 83  
 Residue, 108, 117, 143, 194, 213,  
     238  
 Resonance, zero-width, 102, 131, 173,  
     202, 218  
 Resonance saturation, 115, 123  
 Rho contribution, 113, 116  
 Rho-pi scattering, 153  
  
 Satellites, 186, 197, 200  
 Scale transformation, 457, 458, 463  
 Scattering, baryon-antibaryon, 163,  
     170  
     diffraction, 127, 195  
  
     kaon, 99, 127, 132, 138, 187  
     of neutrinos, 316, 328, 339,  
         342  
     pion-nucleon, 113, 116, 120, 128  
     pion-pion, 133, 164, 173, 182,  
         195  
     rho-pi, 153  
 Second class current, 290  
 Sigma model, 451  
 Signature, 108  
 Spectral measure, 12  
 Spurious states, 240  
 Star algebra, 25, 81  
 State, 37  
     exotic, 132, 171  
     partial, 46  
     spurious, 240  
 Strong local equivalence, 49, 51,  
     54  
 Strong topology, 79  
 SU(3), 159, 164, 168  
 Superselection, 30, 41, 52, 75  
 Symmetry, broken, 441, 450, 452  
  
 Tensor, curvature, 470, 491  
     energy-momentum, 460, 470  
 Time reversal, 288, 370, 382  
 Topology, strong, 79  
     uniform, 79  
     weak, 80  
 Trace identity, 468  
 Trajectory function, 124, 174, 188,  
     193, 202, 210  
 Transformation, chiral, 451, 486  
     conformal, 461, 463  
     Einstein, 464, 467, 475  
     isospin, 451  
     Legendre, 443, 448, 454  
     scale, 457, 458, 463  
     Weyl, 464, 468, 478  
     Yang-Mills, 448, 455  
 Twist, 240, 242  
  
 Uniform topology, 79  
 Unitarity, 102, 106, 124, 192,  
     244, 249  
 Unitarity limit, 314, 318  
  
 Veneziano model, 173, 180  
 Vertex function, 231, 235  
 Vierbein, 443, 490  
 von Neumann ring, 31, 81  
  
 Ward identity, 447, 448  
 Weak equivalence, 425  
 Weak neighborhood, 42  
 Weak topology, 80  
 Weight, of field, 479, 481, 484,  
     487  
 Weyl transformation, 464, 468, 478  
 W-production, 322  
  
 Yang-Mills transformation, 448, 455  
  
 Zero-width resonance, 102, 131, 173,  
     202, 218