Index

actomyosin molecular motor, 70–71
additive character, 2
balance equations for densities of fluids, 85–89
Bruhat–Tits buildings
  affine, 13
cascade model of turbulence, 78–81
characteristic relaxation in complex systems, 116
clustering
  cluster networks, 12
  ensemble clustering, 8
  multiclustering, 8, 12
  coherent state, 22, 28
complex energy landscapes, 67
complex system, 63
disconnectivity graph, 64
distributions, 4
  convolution, 5
  direct product, 5
  Fourier transform, 5
  multiplication, 6
  positive-definite, 136
  wavelet transform, 40
elliptic
  operator, 121
  polynomial, 121
energy
  barrier, 67
  Helmholtz-energy functionals, 124
ergodic
  construction of ergodic functions, 110
  dynamical systems, 105
  1-Lipschitz functions, 108
Euclidean random fields, 190
Fourier transform
  of a distribution, 5
  of a test function, 4
function
  Bruhat–Schwartz, 3
  Green function, 180
  1-Lipschitz functions, 94
  locally constant, 3
  positive-definite, 137
  scaling, 21, 43, 44
  test, 3
fundamental solution, 121, 174
genetic code, 73
Haar measure, 94
heat
  kernel, 118, 121
  trace, 203
hierarchical kinetics, 66
Markov
  chains, 127
  processes, 115, 118, 121
measure preserving 1-Lipschitz functions, 99–104
noise
  Gaussian, 138
  white, 81
operator
  integral operators, 55
  Klein–Gordon pseudodifferential operator, 186
  on ultrametric space, 59
Index

pseudodifferential operators, 54, 159, 168, 179
Taibleson operator, 120
Vladimirov operator, 6
$W$, 122

$p$-adic
Bochner–Schwartz theorem, 136
Brownian motion, 81
Brownian sheet, 195
diffusion, 66
dynamical systems, 94
fractional part, 2
heat equations, 135
multiresolution analysis, 21
norms, 1
numbers, 1
order, 1
parabolic-type pseudodifferential equations, 134
parametrization of the Parisi matrix, 65
scaling function, 48
Shannon–Kotelnikov theorem, 53
wavelets, 20, 46
Parisi matrix, 65
porous medium equation, 90–92
explicit solution, 92–93
quasilinear diffusion, 89–90
reaction–ultradiffusion equations, 123

space
Lizorkin spaces, 6
$H^\infty$, 156–158
dual space of $H^\infty$, 159–168
$W^\infty$, 165–167
dual space of $W^\infty$, 167
spin glass, 65
stochastic
heat equations, 133
integrals, 138
pseudodifferential equations, 148
tree
absolute of a tree, 11
groups acting on trees, 17
of basins, 67
ultrametric models in geophysics, 83–84
ultrametric space, 9, 59
Van der Put Series, 96
wavelet
Haar basis, 20, 41
multidimensional wavelets bases, 33, 51
multiresolution frames, 49
on ultrametric spaces, 59
zeta function
Igusa’s local zeta function, 172
spectral zeta function, 202, 210