

Index

- H*-curve 305
- ω -limit set 436
- k -contraction 421
- Absorbing set 423
- Activation enthalpy 51
- Activation entropy 51
- Approximate invariant manifold 66
- Arrhenius equation 51
- BGK model 27
- BKW-mode 256
- Bobylev's instability 169, 190
- Boltzmann's constant 24
- Boltzmann–Gibbs–Shannon entropy 50
- Cahn–Hilliard equation 428
- Canonical ensemble 332
- Chaffee–Infante equation 429
- Church–Turing thesis 325
- Closure assumption 80
- Coarse-graining 16, 299
- Collision integral 23
- Coloring 295
- Completely thin set 444
- Constitutive equations 376
- Correlative nonlocality 160
- Courant instability 283
- Deborah number 382
- Debye velocity 231
- Defect of invariance 3, 66, 341
- Detailed balance 23, 51, 181
- Diffusive wall 46
- Dissipative operator 419
- Dissipative wave equations 430
- Dorfman's theorem 189
- Dumbbell model 377
- Elementary reaction 180
- Elongation flow 398
- Entropic
 - curvature 348
 - gradient system 90
 - Lyapunov function 80
 - Riemannian structure 12, 84
 - scalar product 6, 25, 83
- Entropy
 - density 24
 - maximization 81
 - production inequality 24
- Expansion into powers of commutator 151
- External stability 449
- FENE force law 379
- FENE–P+1 model 462
- FENE–P model 397, 404
- Fourier integral operator 152
- Frame-indifference 376
- Free energy 52
- Free enthalpy 52
- Freezing coefficients 458
- Frequency-response nonlocality 160
- Gause concurrent exclusion principle 443
- Generalized entropy 50
- Generalized Navier–Stokes equations 427
- Geographical information systems 295
- Geometric singular perturbation 67
- Gibbs phase rule 442
- Ginzburg–Landau equation 427

- Global \mathbf{H} theorem 25
- Grad–Boltzmann limit 21
- Gradient models 58
- Grid invariance equation 280
- Hausdorff
 - dimension 421
 - distance 264
 - measure 421
- Hookean dumbbell 378
- Horizon point 357
- Hydrodynamic fields 22
- Inequalities of concordance 26
- Infinitely viscous flow 162
- Inherited unit 434
- Internal stability 449
- Invariance equation 3
- Invariant grid 280
- Invariant set
 - asymptotic stability 69
 - stability 69
- Isolines 295
- Knudsen number 29
- Kramers stress tensor 378
- Kullback entropy 50
- Kuramoto–Sivashinsky equation 427
- Landau damping 48
- Local Maxwellians 24
- Lyapunov auxiliary theorem 77
- Lyapunov norm 419
- Macroscopically admissible partition 333
- Macroscopically definable transformation 333
- Main symbol of parametrix 152
- Marcelin–De Donder kinetics 52
- Mass action law 51
- Maximal attractor 69
- Maxwell distribution 24
- Maxwell molecules 22
- MDD spline 261
- Micro-reversibility 179
- Model Engineering VIII
- Newtonian direction 90
- Nonlinear Onsager relations 181
- Nonlinear viscosity 240
- Nonlocal Kuramoto–Sivashinsky equation 428
- Normal solution 29
- Observability 331
- Oldroyd-B model 379
- Oracle 333
- Oseen–Burgers tensor 379
- Pairing 90
- Persistence
 - of dissipation 88
 - of reciprocity relations 88
- Phonon transport 230
- Poiseuille flow 46
- Preservation of the type of dynamics 340
- Projectors field 65, 72
- Quasi-biological form 450
- Quasi-chemical representation 26, 179
- Quasi-substance 180
- Quasiequilibrium 81, 301, 336
 - dynamics 84
 - entropy 84
 - manifold 12, 56
 - models 28, 57
 - projector 57, 84, 339
- Radon measure 438
- Rate-of-strain tensor 378
- Reaction–diffusion equations 429
- Reciprocity relations 179
- Reproduction coefficient 433
- Riesz representation 58, 89
- Scattering rates 112
- Self-adjoint linearization 35, 182
- Semi-detailed balance 26
- Shear flow 398
- Simultaneously dissipative operators 419
- Sin-Gordon equation 431
- Sinai–Ruelle–Bowen measure 447
- Slip-velocity 46
- Spectral gap 76
- Stable realizability 435, 450

- Stoichiometric equation 50, 180
Stoichiometric vector 51, 180
Superresolution 286
Support of distribution 433
Tamm–Mott-Smith approximation 33, 100
Thermodynamic Lyapunov functions 52
Thermodynamic stability 376
Thermodynamicity condition 34
Thin set 443
Tjon effect 267
Triangle entropy method 13, 103, 250
Tsallis entropy 50
Universal Lyapunov functional 50
VHP model 256
Volterra averaging principle 443
Vorticity tensor 396
Weak compactness 438
Weak convergence 434
Weissenberg number 382