

Index

- Accretion disc
 - half-light radius, 224
 - instabilities, 3
 - irradiation, 98
 - supercritical, 228, 243
 - surface density, 18
 - twisted, 150
- Accretion rate, 19
 - critical, 3, 243, 246
- Adjoint equation, 306
- Alfvén radius, 336, 341
- Alfvén surface, 340
- Alfvén velocity, 401

- Bondi radius, 335, 373
- Bondi-Hoyle-Littleton accretion, 336
- Boussinesq approximation, 394, 396
- Boussinesq's gradient hypothesis, 13
- Boyer-Lindquist coordinates, 116
- Brunt-Väisälä frequency, 351

- Compton cooling, 342, 343, 364, 366
- Compton heating, 366
- Comptonization parameter, 368
- Convection, 358
- Corotation radius, 376

- Dead discs, disc reservoirs, 20, 54

- Eddington luminosity, 3, 88, 243
- Effective optical depth, 45

- Einstein cross, 218, 230
- Einstein ring, 207
- Einstein-Chwolson radius, 207
- Energy-at-infinity, 25
- Epicyclic frequency, 401

- Gravitational lensing
 - caustics, 211
 - microlensing, 202, 214
 - quasar microlensing, 201, 217
 - strong, 202
 - thin lens approximation, 202, 204
 - weak, 202
- Gravitational potential
 - logarithmic, 24
 - Newtonian, 6
 - Paczynski-Wiita, 23
- Gravitational time dilation, 24
- Growth of perturbations
 - growth factor, 279
 - matrix method, 293
 - non-normal operator, 289
 - normal operator, 288
 - optimal growth, 282
 - power iterations, 305
 - shear harmonics, 273
 - singular values, 291
 - singular vectors, 291
 - swing amplification, 281
 - swing time, 273
 - transient, 263
 - variational method, 305
 - vortex solution, 278

- Innermost stable circular orbit, 121
- Joule dissipation, 397
- Kerr metric, 107, 116
 - epicyclic frequency, 156
 - frequency of vertical oscillations, 157
- Kirchhoff's law, 36
- Lense-Thirring effect, 112, 157
- Magnetic diffusivity, 406
- Magnetic Prandtl number, 407
- Magnetic reconnection, 372
- Magnetized stellar wind, 371
- Magneto-rotational instability, 393
 - MRI mode, 403
 - thin Keplerian discs, 412
 - Velikhov-Chandrasekhar mode, 404
- MHD equations, 395
- Navier-Stokes equation, 4, 10, 345
- Opacity coefficient, 39
- α -parameter, 17, 36, 144
 - determination, 65, 89, 100
- Photoionization heating, 367
- Photoionization parameter, 366
- Planck distribution, 32
- Plasma cooling function, 365
- Prandtl number, 398
- Propeller regime, 376, 383
- Quasi-periodic oscillations, 368
- Radiation cooling, 343
- Radiation transfer equation, 36
 - diffusion approximation, 38
- Rayleigh criterion, 27, 403
- Rayleigh modes, 400, 403
- Rayleigh-Taylor instability, 341
- Reynolds equations, 10, 347
- Reynolds tensor, 11
- Richardson number, 351
- Rosseland opacity, 38
- Schwarzschild metric, 23
- Schwarzschild radius, 22, 115
- Settling accretion, 337
- Spectral hardening factor, 33
- Standard disc, 2, 133, 221
 - bolometric luminosity, 31, 86
 - characteristic time scales, 3, 21, 30
 - heating, 29, 36
 - intensity angular distribution, 88, 98
 - maximum effective temperature, 31
 - radial structure of zone B, 48
 - radial structure of zone C, 50
 - relativistic energy flux, 140
 - spectrum, 32
 - thickness, 54
 - vertical structure, 39, 96
 - boundary conditions, 41, 44, 46, 97
 - dimensionless parameters, 41, 49
 - relativistic, 142
 - viscous evolution, 79
 - viscous stress, 17
 - relativistic, 139
 - viscous torque, 20, 55
 - zones A, B, C, 34
- Stellar wind
 - mass loss, 371
 - velocity, 380
- Supergiant fast X-ray transients, 369
- Taylor number, 350
- Tetrad, 122
 - rotating observers, 129
 - twisted, 162
- Toroidal magnetic field, 378
- Turbulence
 - anisotropic, 338
 - bypass transition, 263
 - subcritical, 261
 - supercritical, 261
- Turbulent heating, 363
- Turbulent viscosity, 8, 348, 377
 - kinematic coefficient, 13, 15, 17, 57, 67
 - Prandtl's law, 15, 349, 375
 - Wasiutynski's law, 357
- Twist equation, 174
- Twisted coordinates, 161
- Twisted disc
 - bending wave, 184
 - diffusion coefficient, 185
 - geometry, 150, 151, 153

- Keplerian resonance, 151, 173
 - local dispersion relation, 183
 - perturbation of orbital velocity, 151, 173
 - relativistic dispersion, 186
 - stationary configurations, 195
 - stationary resonance solutions, 193
 - torques, 154
- Viscous disc evolution, 56, 66
- diffusion constant, 68, 69
 - exponential decay, 64, 88
 - Green function, 59, 62
 - numerical model, 80, 89
 - finite difference scheme, 92
 - FREDDI code, 89, 96, 100
 - power-law decay, 61, 79, 81, 86
 - power-law growth, 77
 - self-similar solutions, 56, 67
- Viscous dissipative function, 397
- Viscous stress, 5
- thin disc, 5, 16, 19
- WKB approximation, 395
- X-ray novae, 65, 80, 88
- X-ray pulsars, 376
- equilibrium period, 379, 380, 384
 - spin-up/spin-down torques, 379
 - strong coupling regime, 374