

# Index

- $\alpha$  Cen A 285ff.  
 $\alpha$  Cir 242, 299f., 309  
 $\beta$  Cephei stars 348  
 $\beta$  Cephei  
    asteroseismology 395  
    seismic models 357  
 $\delta$  Scuti stars 250  
    observations 323  
    theory 331  
 $\delta$  Scuti 291  
 $\epsilon$  Per stars 349  
 $\gamma$  Dor stars 293, 387  
 $\gamma$  Dor 323  
 $\kappa$ -mechanism 279  
 $\theta$  Tuc 337  
10 TeV cosmic rays 465  
12(DD)Lacertae  
    rotation and pulsation 381  
    rotational splitting 379f.  
4 CVn 323, 335  
51 Peg 233ff., 329  
53 Per stars 349  
9 Aurigae 325
- A-type stars  
    normal and peculiar 385  
acoustic source 418  
acoustic waves  
    emission 213  
    scattered 216  
acoustic wavetrains 412  
active region 173  
adiabatic exponent 317  
amplitude limitation 250  
amplitude variations 323  
angular momentum 40  
aspect ratio 124  
asteroseismology 245, 479  
    “active” 261ff.  
    definition 231f.  
    space mission 301ff.
- asymmetry  
    spectral peaks 420  
atmosphere  
    isothermal 423ff.  
atmospheric dynamics 427ff.  
averaging kernel 129  
avoided crossings 247
- B stars  
    amplitudes 355ff.  
    instability strip 355  
    nonlinear theory 359  
    slowly pulsating 295ff.  
Böhm-Vitense decrement 327  
Balmer lines  
    suppression of oscillation signal 375  
Bayes’s theorem 127  
Be stars 351  
beryllium 27ff., 135  
big bang nucleosynthesis 26ff.  
bisector velocity 309  
BiSON – LOI comparison 45  
BiSON update 221  
BiSON 169, 172
- Ca K grains 427ff., 437  
    formation 444  
CaII resonance lines 437  
canopy 406  
carbon monoxide 403  
CD-24° 7599  
    rotational splitting 336  
cell flashes 406  
chemical composition 41  
chromosphere 405, 421  
CO Aur 389  
CO off-limb emission 409  
COmosphere 406  
convection theory 115  
convection zone 85

- convection 73, 122, 217, 457
  - large scale 59ff.
  - observations 59ff.
- convective boundaries in stars 315
- convective cores 73ff.
- convective envelope
  - solar 81
- convective flow 107
- convective overshooting 75, 76, 333
- corona 405
- coronal heating
  - simulation 467f., 469f.
- COROT project 301ff.
- data
  - analysis 43
  - for helioseismology 1ff.
  - reduction (helioseismic) 13ff.
- degradation of radiometers 90
- differential response technique 80
- differential rotation 142, 149
- diffusion 27ff., 136, 281, 337
  - impact on evolution 264
- diffusive time scale 104
- double-mode Cepheids
  - Fourier decomposition 389
- driving of oscillations 186
- dynamic atmosphere diagnostics 441
- EC 14026 stars 235ff.
  - driving mechanism 369
  - mode identification 364
  - predictions 371
  - theory 367
- element segregation 135
- equation of state 318
- equivalent width
  - cycle variability 459
- ERBS satellite 90
- error correlation 131
- excitation
  - overstability 249
  - resonance 186
  - stochastic 248
- extrasolar planets 328
- f-mode 165ff., 187
- FG Vir 323
  - metallicity 332f.
- flow fields 175
- flows
  - large-scale 149
- flux tubes 215, 406
- frequencies
  - combinational 214
  - comparison 45
- frequency separation
  - large 246
  - small 246
- frequency splitting 142
- frequency
  - buoyancy 245
  - dynamical 245
  - Lamb 245
- g-mode pulsations 323
- g-modes 232
  - $\delta$  Scuti 334
  - solar 51, 55
- GONG – LOI comparison 167
- GONG 13, 49, 54
- granular flow 451
- granulation 106
  - dynamics 451
- granules 185, 217
- GW Lib 233, 321f.
- $^3\text{He}/^4\text{He}$  ratio 135
- H $_{\alpha}$  line 309
- H $_{\beta}$  equivalent width
  - fractional variation 378
  - integrated light 376
- Halo stars 31ff.
- HB red variables 401
- HD 128898 242
- HD 134214 242
- HD 164615 327
- HD 224638 327
- HD 24712 299f.
- HeII ionization region 318
- helium abundance 317

- high-frequency interference peaks 416
- high-frequency peaks 447
- high-speed photometry 362
- HIPPARCOS 232
  - B stars 295
  - survey 291
- horizontal branch 365
- horizontal velocities 458
- hot subdwarfs
  - pulsation 361
- HR 1217 240
- HR 2740 387
- HR 3831 241
- Hyades 28ff.
- image geometry 15
- infrared solar observations 403
- instability strip 293
- integral constraint 73, 76
- internal gravity waves 456
- internal structure
  - solar 135
- inversion 22, 25ff., 125
  - oscillations 117
  - resolution 129
  - rotation 251
    - trade-off curve 130
- irradiance variations 103, 119
- irradiance
  - proxy model 98
  - reconstruction 98
  - total solar 89
- jet
  - high latitude 144
- k- $\epsilon$  model 121
- lambda-meter method 442
- light elements 135
- line asymmetries 195
- line asymmetry
  - $\ell = 2$  170
- line profile variations 387, 393
- linearization in inversions 126
- lithium abundance 25ff., 41, 135
- LOI 43
- long period variables 399
- Lorentz force 169
- magnetic activity 103, 224
- magnetic field 423ff.
- magneto-optical filter
  - calibration 53
- mass loss 337, 351
- maximum likelihood estimation 43
- McMath-Pierce telescope 408
- MDI observations 157ff.
- meridional flow 149
- mesogranulation 457f.
- metallicism 237f.
- MHD oscillations
  - observations 453
- MHD waves 425
- mixing length 74, 78
- mixing processes 135
- mixing-length theory 218
- moat 108
- mode identification 326, 332, 393
- mode parameter estimation 17
- modes
  - low degree 173, 179
  - mixed 247
- molecular weight gradient 139
- multicolour photometry 269
- near-surface perturbation 174
- neutrino
  - solar 21, 42, 137
- NGC 2516 325
- NIMBUS-7 satellite 90
- non-radial pulsations
  - CV primary 321f.
  - line profile 383
- nonradial oscillations
  - axisymmetric 278
- NSO-FTS 408
- numerical simulations 78, 107

- OB stars 347
- obliquely rotating core 37
- optimal masks 179
- optimally localized averages 129
- oscillation
  - excitation 457
- oscillations in active regions
  - observations 449
- oscillations
  - local excitation 461
  - solar-like 285ff.
  - solar 21
- outbursts 351
- overshoot layer 121
- overstable convection 278
  
- p-mode amplitudes 113
- p-mode characteristics 153
- p-mode excitation 183
- p-mode frequency 49
- p-mode spectrum 85
- p-modes
  - “Raman spectroscopy” 213
  - amplitude modulation 113
  - correlation 223
  - damping 199ff.
  - excitation 199ff.
  - high  $n$  448
  - line profiles 229
  - phase spectra 455f.
  - power 227
  - rotation modulation 114
  - temporal behaviour 227
- peak fitting 17
- peak-bagging 132f.
- penetration distance 124
- penetration 73
- penetrative convection 123
- phase relations 427ff.
- phase spectra from MDI 455
- photometric campaigns 326
- photometric facular index 99
- photometric sunspot index 98
- photosphere 187, 404
- plage regions 413
  
- Pleiades 28ff.
- PMS  $1.8 M_{\odot}$  stars
  - theory 397
- Procyon campaign 319f.
- pseudo-modes 448
- pulsation axes 38
  
- radial velocities 458
- radiance
  - latitudinal variation 111
- radiation hydrodynamics 115
- radiation-hydrodynamic modelling 438
- radiometric accuracy 90
- Raman scattering 216
- rapid spectroscopy 269
- regularized least squares 142
- regularized least-squares 127
- resonance condition
  - Cherenkov 214
- roAp stars 238ff., 277, 299f., 309
  - amplitude gradients 277ff.
  - kinematics 312
  - magnetic properties 313
  - phase-shift 270
  - radial node 271
  - singularity 311
- Rossby wave
  - instability 177f.
- rotation (stars) 352
- rotation axis 37
- rotation near surface 145
- rotation 25ff., 38, 335
- rotational splitting 153, 248, 387
  
- scattering centers 215
- second overtone pulsators 389
- seismic events 184
  - 2-D spatio-temporal evolution 461f.
  - flares 191
- seismic model
  - solar 22, 81f.
- SMM 90
- SOHO 43, 91, 447
  - integrated magnetic field 225
- solar activity 174, 219

- solar atmospheric structure
  - diagnostics 427ff.
- solar chromosphere
  - basic physics 436
  - observations 436
  - simulations 437
- solar core 420
- solar cycle 146, 171
  - magnetic field distribution 463, 465
- solar magnetic field
  - spatial distribution 463
- solar observations
  - resolved vs unresolved 473
- solar oscillations 219
  - excitation 197, 221
  - three-dimensional 175
- solar radius 165
- solar rotation 141
  - LOWL and GONG 181
  - splittings 167
- solar shadow 465
- solar structure
  - spherical and aspherical 157ff.
- solar-like oscillations 316
- solar-like stars
  - equivalent width technique 375
- solar-stellar seismology
  - synthesis 471
- solar-type stars
  - oscillations 319
- SPB stars 232
- stellar oscillations 299f.
- stellar p-mode spectra
  - periodicity 315
- stellar p-modes
  - asymptotic description 391
- stochastic excitation 223
- sunspot blocking 107
- sunspots 219, 413
- super-resolution 130
- superadiabatic convection 198
- supergiants 350
- tachocline 143f.
- temperature inversion 282
- temperature minimum 404
- temperature profile 41
- thermal shadows 413
- thermal time scale 104
- time series
  - composite TSI 96
  - modelling 57
- time-distance seismology 149
- transition zone 405
- turbulence 196
  - dynamics 451
- turbulent pressure 452
- UARS satellite 91
- umbral oscillations 425
- velocity-intensity spectra 429
- vertical velocity (rms) 123
- viscous dissipation 78
- wave reflection 430
- waveforms 428
- white dwarf pulsations 253ff., 261ff.
- white dwarfs 232f.
- Whole Earth Telescope 262f.
- window function 47
- windows
  - neutrinos vs seismology 472
- ZZ Ceti stars 253ff.