

## Index

- $\alpha$  Centauri, 1
- $\beta$  Persei, 1
- $\delta$  Scuti star, 14
- $\eta$  Car, 157
- $\eta$  Carinae, 2, 7, 156
- $\zeta$  Aur star, 5
- 17 Lep, 77
- 4 Dra, 84
- 4U 1954+31, 83, 84
- 89 Her, 97
  
- A star, 15, 20, 176
- abundance discrepancy factor, 119
- AC Her, 97
- accretion, 6, 18, 169
- accretion disc, 6, 39, 97, 99, 169, 182
- accretion induced core collapse, 170
- adaptive optics, 14
- afterglow, 181, 186
- AG Dra, 84
- AG Peg, 84, 85
- Alcor, 1
- Algol, 1
- ALMA, 226
- angular momentum, 135, 182
- asteroseismology, 268
- astrometry, 36
- asymptotic giant branch star, 92, 172
- AX Per, 77
  
- B star, 15, 20, 147
- barium, 265
- barium star, 6, 81, 115
- Bayesian method, 55
- BD+46°442, 99
- binary
  - double-lined spectroscopic, 12, 302
  - eclipsing, 13, 35, 38, 39
  - ellipsoidal, 39
  - evolution, 45
  - fraction, 2, 12, 14, 147, 278, 301, 309
  - high-mass X-ray, 6
  - interacting, 2, 3, 7, 9, 308, 314
  - massive, 215
  - orbit, 47, 158
  - population synthesis, 45, 173, 319
  - primordial, 279
  - single-lined spectroscopic, 12
  - spectroscopic, 37
- binary frequency, 263
- binary\_c, 49
- bipolar jet, 84
- bipolar outflow, 98
- black hole, 12, 185, 191, 252
  - intermediate mass, 254
  - kicks, 195
  - masses, 196
  - merger rate, 196
- black hole binary, 251, 252
- blue straggler, 251, 263, 312
  - age, 264
  - main sequence, 270
  - rotation, 271
- blue straggler star, 6, 155, 277
- blue supergiant, 161
- Bondi–Hoyle accretion, 5
- brown dwarf, 231
  
- carbon dwarf, 114
- cataclysmic variable, 6, 7
- carbon-enhanced metal-poor (CEMP) star, 57, 299
- Cepheid, 34
- CH Cyg, 84
- Chandrasekhar limit, 88, 113, 168
- chemical yield, 51
- chemically homogeneous evolution, 182
- chemically peculiar objects, 298
- CI Cyg, 77, 83
- circumbinary disc, 96, 157

circumbinary exoplanet, 119  
 circumstellar material, 153, 167, 172  
 collision, 168, 262, 265, 268, 277  
 Coma Berenices, 70  
 common envelope, 93, 95, 106, 182  
 common-envelope evolution, 7, 18, 308  
 comoving pair, 37  
 complex stellar population, 317  
 composite spectrum, 12  
 convection, 131  
 core-collapse supernova, 155, 168, 282, 310  
 core-degenerate scenario, 172  
 correlated star formation, 208  
 Cosmic Explorer, 192  
 Cyg X-3, 199  
 Cyg OB2 #12, 157  
  
 degenerate, 168  
 delay time distribution, 173  
 dendrology, 46  
 depletion, 99  
 Doppler boosting, 39  
 Doppler tomography, 99  
 double degenerate, 112  
 double neutron star, 199  
     merger rate, 200  
 double-degenerate model, 168  
 double-lined spectroscopic binary, 302  
 Draco C-1, 79, 84  
 dredge-up, 63, 66  
 dual-dust chemistry, 118  
 dust, 94  
     sublimation, 97  
 dynamical capture, 227  
 dynamical friction, 279, 283  
  
 early-type binary, 15  
 early-type star, 12, 19, 21  
 eccentricity, 21, 95  
 eccentricity pumping, 96  
 eclipse timing, 14  
 eclipsing binary, 35  
 Eddington limit, 156  
 Eddington luminosity, 79  
 Einstein radius, 39  
 Einstein Telescope, 192, 194  
 ellipsoidal distortion, 80  
 episodic accretion, 232  
 eruption, 153  
 ESO SPY survey, 170, 174, 175  
  
 feedback, 232  
 Fine Guidance Sensor, 148  
 fission, 229  
 flickering, 79  
 fragmentation, 15, 24, 299  
 fragmentation crisis, 233, 235

Gaia, 13, 32, 160, 176, 201  
 Gaia-ESO survey, 37  
 Gaia16aye, 34, 39  
 GAL 026.47+00.02, 157  
 galactic bulge, 13  
 galaxy evolution, 167  
 galaxywide IMF, 210  
 gamma-ray burst, 181  
     long, 182  
     short, 185  
 giant eruption, 153, 156  
 globular cluster, 185, 251, 277, 312  
 gravitational energy, 168  
 gravitational lensing, 316  
 gravitational wave, 2, 186, 191, 193, 252, 316  
 GRAVITY, 149  
 GRB 130603B, 185, 186  
 GW150914, 191, 194, 198  
 GW170608, 196  
 GW170817, 186, 191, 199  
 GX 1+4, 83, 84  
  
 HATPI, 32  
 HD 160529, 157  
 HD 168625, 157  
 HD 5980, 157  
 head-on collision, 171  
 Herschel, 235  
 Hertzsprung–Russell diagram, 37, 129, 153, 312  
 high-angular resolution, 145  
 high-mass X-ray binary, 6  
 high-order multiple, 15, 236  
 Hipparcos satellite, 34  
 HM Sge, 85  
 HM Cancri, 2  
 Homunculus nebula, 2, 157  
 HR Car, 7, 156, 158, 159  
 Hubble Space Telescope, 157, 183  
 Humphreys–Davidson limit, 153  
 Hyades, 70  
 hydrodynamics, 131  
 hydrogen, 167  
  
 infrared, 96  
 initial binary distribution, 48  
 initial mass function (IMF), 23, 208, 210, 225, 301, 309  
 interacting binary, 308, 314  
 interacting stellar winds model, 106  
 interferometric gap, 148  
 interferometry, 6, 14, 96, 156, 158  
 intergalactic medium, 183  
 intermediate-mass black hole, 254  
 IRAS08544-4431, 97  
 irradiation, 80  
 IV Vir, 80  
 IW Car, 97

- jet, 84, 98, 109, 181, 186
- KAGRA, 192
- Kepler satellite, 13, 14, 38, 40
- Kepler's supernova, 173
- Keplerian disc, 97
- kilonova, 185, 199
- kinetic energy, 168
- Kozai–Lidov cycle, 25
- Kozai–Lidov mechanism, 226, 237
- laser interferometry, 191
- late-type star, 12, 21
- LBV 1806-20, 157
- light-travel-time delay, 14
- LIGO, 191, 192, 252
- LIGO India, 192
- LISA, 191, 193, 194, 198
- low-mass X-ray binary, 6
- LSST, 13, 32, 201
- LT Del, 80
- lucky imaging, 14
- Luhman 16, 1
- Luminous Blue Variable, 2, 153
- M star, 15, 20
- M 15, 69
- M 4, 70
- M 68, 69
- M 92, 69
- M101, 170
- M67, 262
- MACHO 82.8405.15, 100
- macronova, 185
- Magellanic Clouds, 13, 22, 38, 94, 153
- magnetar, 182
- magnetic field, 233, 269
- mass accretion, 6, 153
- mass ejecta, 51
- mass ejection, 153
- mass gainer, 160
- mass loss, 128, 129
- mass ratio, 12, 18, 237
- mass segregation, 279, 284
- mass transfer, 5, 18, 160, 168, 262, 263, 265, 271, 277, 301, 308, 312
- mass-luminosity relation, 14, 211
- mass-metallicity relation, 218
- mass-ratio distribution, 15, 301
- massive binary, 215
- massive star, 128, 144
- merger, 161, 168, 170, 171, 262, 268
- meridional circulation, 72
- metal-poor star, 57, 298
- metallicity, 22, 129
- MHD, 233, 235
- microlensing, 38
- migration, 15
- Milky Way, 174, 316
- Mira AB, 84
- misaligned multiple, 237
- mixing, 130, 182
- mixing-length theory, 131
- Mizar, 1
- multimessenger astronomy, 186
- multiplicity, 144
  - fraction, 232
  - frequency, 15
  - massive star, 145
- MWC 560, 84
- MWC 314, 157
- near-infrared, 94
- neutron star, 12, 170, 171, 181, 185, 191
- NGC 188, 263
- NGC 6397, 70, 71
- NGC 6819, 265
- NGC 6752, 70
- nickel, 168
- nonideal MHD, 234
- NQ Gem, 84
- nuclear burning, 77
- nucleosynthesis, 167
- O star, 15, 18, 20, 129, 146
- OGLE survey, 38, 40
- open cluster, 22, 251, 261, 312
- orbit, 36, 95
- orbital element, 159
- orbital migration, 22, 25
- orbital period distribution, 147
- outflow, 98
- periastron, 159
- period distribution, 15, 301, 309
- photocentre, 37
- photometric survey, 13
- photometry, 37
- Pistol Star, 157
- Planck satellite, 183
- planetary nebula, 7, 12, 77, 92, 106
- Plato mission, 32
- Pleiades, 70
- polarisation, 171, 183
- Population II, 299, 302
- Population III, 299, 318
- population synthesis, 45, 307
- post-AGB star, 6, 92
- post-RGB star, 95
- potassium, 172
- pre-main-sequence star, 97, 236
- primordial binary, 279
- primordial mass segregation, 209
- prompt initial fragmentation, 229

proper motion, 14  
 protoplanetary disc, 96  
 protoplanetary nebula, 92  
 protostellar disc, 23  
 PSR J1913+16, 198  
 pulsating star, 14  
 P Cygni, 158  
 P Cygni profile, 98

quasar, 34, 183  
 QZ Car, 149

R 4, 157, 161  
 R 81, 157  
 R Coronae Borealis star, 113  
 R Sculptoris, 4  
 r-process element, 185  
 radial velocity, 12, 95, 156, 174, 304  
 Raman scattering, 79  
 recurrent nova, 88, 169, 174  
 red giant, 170, 171  
 Red Rectangle, 97  
 red supergiant, 129, 155, 161  
 red transient, 7  
 reionisation, 183, 319  
 repeated merger, 255  
 Roche lobe, 5  
 Roche-lobe overflow, 6, 25, 80, 168, 308  
 rotation, 128, 132  
 rotation synchronisation, 84  
 rotational support, 171  
 RS Oph, 88, 169, 170  
 runaway collision, 255

S Doradus outburst, 153, 156, 158  
 s-process element, 81, 100, 300  
 Sanduleak's star, 79  
 SAO 173329, 99  
 SDSS, 175, 301, 319  
 SDSS J010657.39-100003.3, 2  
 semiconvection, 64  
 shear instability, 72  
 Sher 25, 157  
 shock, 171  
 simple stellar population, 317  
 single-degenerate model, 168, 174  
 Sirius, 1  
 SMaSH+, 148  
 SMC-3, 84  
 SN 1006, 173  
 SN 1987A, 157, 161  
 SN 2005gl, 155  
 SN 2006gy, 155  
 SN 2006X, 172  
 SN 2007on, 169  
 SN 2009ip, 155  
 SN 2010mc, 155

SN 2011fe, 170, 171  
 SN 2014J, 170  
 SNR 0509-67.5, 173  
 sodium, 172  
 solarlike star, 19, 22  
 sparse-aperture masking, 14  
 speckle imaging, 14  
 spectral energy distribution, 93  
 spectral synthesis, 307  
 spectrointerferometry, 97  
 spectroscopic binary, 96  
 spectroscopic binary fraction, 146  
 spectroscopy, 12, 145  
 SPHERE, 149  
 Spitzer satellite, 94  
 Spitzer's instability, 248  
 star

- $\delta$  Scuti, 14
- $\zeta$  Aurigae, 5
- A type, 15, 20, 176
- age, 21, 264
- AM CVn, 35
- association, 22
- asymptotic giant branch, 4
- B type, 15, 20, 147
- barium, 81
- blue straggler, 6, 251, 263, 264, 312
- early type, 19
- envelope, 92
- envelope-stripped, 181
- globular cluster, 251, 277
- heartbeat, 39
- intermediate mass, 92
- late type, 21
- low mass, 92
- M type, 15, 20
- mass, 21
- mass loss, 92, 153, 154, 159, 182
- massive, 128, 144, 153, 182
- merger, 7, 93, 153, 157, 185
- metal poor, 57
- O type, 15, 18, 20, 129, 146, 155
- OB, 3, 5
- open cluster, 22, 261
- outflow, 98
- post-AGB, 6
- rejuvenated, 160
- R CrB, 34
- RR Lyrae, 34
- runaway, 21
- solar type, 15, 19
- solarlike, 2
- subdwarf, 2
- triple, 2, 161
- wind, 156
- Wolf-Rayet, 129, 155, 157

- star formation, 18, 298
- star–disc interaction, 229
- star-formation efficiency, 209
- steady nuclear burning, 169
- stellar accountancy, 49
- stellar age, 21
- stellar association, 22
- stellar atmosphere model, 310
- stellar evolution, 92
- stellar evolution model, 308
- stellar luminosity function, 212
- stellar mass, 21
- stellar number counting, 49
- stellar parameter space, 47
- stellar wind, 168
- StHa 169, 85
- sub-subgiant, 268
- Sun, 68
- supernova
  - core collapse, 168, 282, 310
  - progenitor, 167, 314
  - rate, 176
  - remnant, 173
  - type Ia, 7, 81, 112, 167
  - type Ib/c, 160, 181
  - type II<sub>n</sub>, 155
- supersoft X-ray source, 169
- Swift X-ray satellite, 81
- symbiotic star, 6, 77
  - yellow, 81
- synthetic spectrum, 310
- synthetic stellar model, 49
  
- T CrB, 80, 84, 88, 169, 170
- T Tauri star, 22
- TESS satellite, 32
- TGAS, 34
- thermonuclear combustion, 168
- thermonuclear explosion, 170
- third dredge-up, 81
- tidal capture, 228
- tidal dissipation, 237
- tidal friction, 25
  
- tidal interaction, 182
- tide, 21
- triple system, 15, 24, 118, 148
- turbulence, 230, 234
- TW Cam, 99
- twin fraction, 19
- Tycho mission, 34
- Tycho’s supernova, 173
  
- ultrawide binary formation, 229
- unresolved stellar populations, 307
- U Sco, 169, 170
  
- V1016 Cyg, 85
- V3890 Sgr, 88
- V407 Cyg, 88, 89
- V745 Sco, 88
- V934 Her, 84
- Very Large Telescope, 37
- very late thermal pulse, 120
- Virgo, 191, 192
- visual binary, 14
- VLA, 226
  
- white dwarf, 2, 6, 12, 106, 168, 169, 171, 191, 262–264, 272
  - double, 174
  - extremely low-mass, 174
  - mass, 175
  - merger, 175
- wind accretion, 5, 93
- wind Roche-lobe overflow, 5, 115
- wind–wind collision, 157, 158
- Wolf–Rayet star, 129, 155, 157
  
- X-ray observation, 173
- X-ray source, 13
  
- yellow giant, 262, 267
  
- Z And, 84
- Zeeman polarimetry, 233
- ZTF, 32