

Index

- ¹⁷O, *see* oxygen
- ¹⁹F, *see* fluorine
- ²³Na, *see* sodium
- ²H, *see* deuterium
- ³¹P, *see* phosphorus
- ³⁵Cl, *see* chlorine
- ³⁹K, *see* potassium
- ⁷Li, *see* lithium

- abdomen 169, 446
- action potential 70
- AD, *see* Alzheimer's disease
- adenosine triphosphate, *see* ATP
- Alzheimer's disease 152, 440
- amyloid 440
- anabolism 47
- angiogenesis 440
- atherosclerosis 440
- ATP 46, 231
 - energy coupling 50
 - hydrolysis 50
 - properties 49
- ATPase reaction 221, 234

- bacteria 317
- battery 180, 393
- bicarbonate 67
- bioorganic solid 297
- blood
 - flow 318
 - substitute 406
- bone 250, 324

- brain 138, 243, 272, 288, 293,
307, 309, 314, 318, 363, 388
- breast 154, 247

- Ca²⁺, *see* calcium
- calcium 40, 66, 437
- cancer 133, 276, 319, 435
 - brain 147, 245, 272, 311, 314,
364
 - breast 154, 247
 - cells 440
- carbon 40
- cardiac 156, 251, 291, 294, 367
- cartilage 164, 322
 - intervertebral disk 169
 - osteoarthritis 165
 - repair 167
- catabolism 47
- cellular respiration 51
- cement 183, 280
- chloride, *see* chlorine
- chlorine 41, 44, 66, 80, 267
 - relaxation 272
- CK reaction, *see* creatine kinase
- Cl⁻, *see* chlorine
- clay 183, 296, 325
- CMR₀₂ 337, 367
- coherences 5
- compartments 97, 129
- creatine kinase 63, 221, 234

- decoupling 94, 227
- density matrix 4

- density operator 4
- deuterium 45, 82, 303
- diabetes 161
- DNA 176
- DNP, *see* dynamic nuclear polarization
- DQF, *see* multiple quantum filter, double quantum filter
- drug delivery 423
- drugs 317
- dynamic nuclear polarization 369

- elastomers 325
- electrochemical equilibrium 67
- electrochemical gradient 64
- electrolyte solvation 176
- endergonic 48
- energy metabolism 46, 231, 307
- enzymatic activity 443
- equilibrium potential 67
- erythrocytes 296
- exergonic 48

- fermentation 60
- fluorinated tracer 404
- fluorine 41, 45, 84, 399
 - cell detection 440
 - cell gracking 426
 - cell grafting 428
 - cell label 427
 - cell loading 427
 - cell quantification 428
 - cell transplant 428
 - multispectral 420
 - ON/OFF 421
 - simultaneous 420
- food 179, 251

- Gibbs–Donnan effect 69
- glycolysis 52, 54

- Goldman–Hodgkin–Katz (GHK) equation 68
- graft rejection 439

- H^+ , *see* hydrogen
- Hamiltonians 11
 - chemical shift 12
 - dipole–dipole or dipolar 13
 - indirect spin–spin or J-coupling 13
 - quadrupolar 14
 - radiofrequency or B_1 11
 - spin–rotation or spin–orbit 15
 - Zeeman 11
- heart 156, 251, 291, 294, 367
- Huntington’s disease 153
- hydrogen 39, 66
- hypertension 163

- inflammation 430
- inflammatory bowel disease 435
- ion homeostasis 64, 65
- IR-TQF, *see* multiple quantum filter, inversion-recovery triple quantum filter
- irreducible spherical tensor operators 6
- ischemia 435
- ISTO, *see* irreducible spherical tensor operators

- k-space trajectory
 - Cartesian 92
 - non-Cartesian 92
- K^+ , *see* potassium
- kidney 171

- Li^+ , *see* lithium
- link reaction 53, 55
- liposome 178

- lithium 41, 45, 84, 383
 - sodium congener 392
- liver 251, 317
- lung 171, 442

- magnesium 41, 66
- magnetic field
 - monitoring 326
- magnetization transfer 221
- master equation 10
- materials 181, 252, 296, 325, 393, 447
- membrane 177
- membrane potential 67
- Mg²⁺, *see* magnesium
- MQF, *see* multiple quantum filter
- MS, *see* multiple sclerosis
- MT, *see* magnetization transfer
- multiple quantum filter 17, 132, 361
 - double quantum filter 19
 - inversion-recovery triple quantum filter 21
 - triple quantum filter 20
- multiple sclerosis 151
- muscle 237, 278, 290, 368, 392
 - exercise 230
 - muscular channelopathy 159
 - myotonic dystrophy 160
 - skeletal 157

- Na⁺, *see* sodium
- Na⁺/K⁺-ATPase 74
- Nernst equation 67
- nervous system 432
- nitrogen 40
- NOE, *see* nuclear Overhauser effect
- nuclear Overhauser effect 94, 228

- OA, *see* cartilage, osteoarthritis
- oxidative phosphorylation 53, 57

- OxPhos, *see* oxidative phosphorylation
- oxygen 39, 45, 83, 331
 - direct detection 356, 359
 - inhalation 360
 - metabolism 337
 - models 341
 - quantification 340
 - relaxation 335
 - water 371
- oxymetry 443

- partial volume effect 95
- perfluorocarbon 404
 - blood substitute 406
 - cell label 413
 - CEST 417
 - micelles 415
 - multimodal 416
 - nanoemulsions 413
 - nanoparticles 415
 - ON/OFF 418
 - paramagnetic 415
 - pH 418
 - pharmacokinetics 418
 - properties 407
 - quantum dot 416
 - signal 406
 - theranostic 416
 - tracers
 - branched 411
 - fluorescence 415
 - molecular 408
 - multimodal 415
 - polymer 410
- perfusion 318
- PET 307
- PFC, *see* perfluorocarbon
- pH 229, 436
- phase cycling 19
- phosphate, *see* phosphorus
- phospholipids bilayers 298

- phosphorus 40, 66, 78, 211
 - ^{31}P 44
 - quantification 228
- plant 252, 325
- polymer 181, 295
- populations of spin states 5
- porous media 182
- potassium 41, 44, 66, 81, 283
- prostate 173
- proteins 447
- pulse sequence 89

- quantification 96
- quantum spin state 3

- radiofrequency coils 89
- receptivity 86
- reconstruction 95
- relaxation 15
- resting membrane potential 68
- RF coils, *see* radiofrequency coils

- salts 296
- sciatic nerve 324
- signal-to-noise ratio 87
- simultaneous acquisition 94
- SNR, *see* signal-to-noise ratio
- sodium 40, 44, 65, 75, 119, 438
 - quantification 133
 - relaxation 126
- sodium-potassium pump, *see* Na^+/K^+ -ATPase
- soil 252
- spectrally selective 220
- spectroscopy 89, 217, 309

- stroke 142, 275, 365
- sulfur 40

- TCA cycle 53, 55
- temperature 445
- therapy 317
 - resistance 137
 - response 135
- TQF, *see* multiple quantum filter, triple quantum filter
- transport
 - active 72
 - antiporter 73
 - channel 72, 73
 - exchanger 73
 - ion 71
 - passive 72
 - symporter 73
- tumor 133, 147, 245, 272, 276, 311, 314, 319, 364

- uterus 173

- vesicle 177

- Warburg effect 61
- whole body 174

- X-nuclei 37

- yeast 178, 297