

Index

- absorbed dose, 28, 33, 37, 47, 90, 142–147, 149, 150, 152, 154–160, 162–166, 168–172, 174–178, 180–184, 187–193, 195–207, 209, 212, 214, 215, 220, 221, 223–225, 227, 234–236, 241–244, 249, 250, 252
absorption, 32, 33, 39, 44, 48, 50, 61, 76–79, 99, 101–104, 110, 131, 142, 149, 153–155, 158, 162, 167–169, 172, 174–180, 185, 186, 189, 226, 244, 245, 250, 252, 262, 269
activation detector, 97
activity, 1–3, 8, 10, 11, 13, 14, 16, 21, 24–26, 43, 59, 95, 97–102, 104, 108–110, 113, 115–121, 125, 132–134, 142, 154–156, 163, 164, 167–171, 210–212, 220–235, 237–243, 245, 246, 252, 255, 257
albedo, 216, 217
apoptosis, 191
area source, 212, 219, 228, 255–259, 266
atomic mass, 2, 12, 14, 24, 27, 39, 133, 135
atomic number, 4, 7, 28, 32–36, 38–40, 43, 45, 50, 55, 56, 63, 71, 148, 177, 214, 215
attenuation, 31, 45, 49, 51, 57, 63, 64, 72, 73, 82, 100, 112, 144, 145, 155, 158, 159, 180, 213, 214, 217–219, 229, 255, 258, 262, 264
attenuation coefficient, 30–32, 38, 44, 61, 63–67, 72, 74, 76, 77, 81, 87, 89, 99, 100, 112, 113, 115, 131, 167, 169, 213, 214, 219, 244–246, 252, 253, 256, 257, 259, 260, 262, 263
auger electron, 4, 7
background, VII, 93, 95, 97–102, 104–106, 108–112, 114, 115, 117–121, 126, 132–134, 155, 228, 229, 269
bateman equations, 1
binomial distribution, 91, 192
bragg relation, 31
bremsstrahlung, 8, 33, 41, 43, 49, 55–57, 61, 139–141, 144
buildup factor, 38, 214–216, 266
burlin theory, 148, 149, 157, 176
calorimeter, 8, 152, 160, 187
cavity theory, 147, 148
cell survival, VII, 191–194, 196–198, 200, 201, 203, 204, 206–208
cem, 142
cerenkov radiation, 43, 57
charged particles, V, VII, 28, 31–33, 39–41, 51, 60, 61, 70, 138–142, 144, 145, 147
coherent scattering, 31
coincidence rate, 95, 101, 119, 120
collision kerma, 141, 142, 144, 145, 158, 180
critical energy, 33, 34
critical organ, 223
cross section, 2, 10, 23–25, 29–31, 35–38, 62, 70–72, 74, 76, 77, 79, 84, 85, 87, 98, 104, 133, 135, 269
dead time, 94, 95, 100, 102, 103, 122, 126
differentiated cells, 191
disintegration, V, 3, 13, 14, 63, 229
effective dose, 209, 210, 222–226, 231–236, 242, 248, 250
elastic scattering, 56
equivalent dose, 209, 210, 220
excretion equation, 211, 222
extrapolation number, 192, 197, 204
fission, 10, 11, 209
fluorescence yield, 4, 18, 19, 62, 71, 79, 85, 89
fricke dosimeter, 152, 160, 188
fwhm, 103, 130
gas detector, 96, 102
gas multiplication, 96, 105
gaussian distribution, 91–93
geometry factor, 93–95, 100, 113, 117, 119–121, 125
half life, 3, 8, 13, 14, 99, 110, 112, 155, 163, 168, 170, 212, 222–224, 230, 232–235, 239, 241, 243
hypoxia, 195
incoherent scattering, 31, 32, 36, 46, 62, 63, 66, 70–76, 82–85, 88, 148
internal conversion, 4–6, 8, 9, 16–19
internal transition, 10
intrinsic efficiency, 100
ion recombination, 151

- ionization, 28, 33, 43, 59, 102, 103, 122, 126, 127, 151, 159–161, 185, 186, 188, 190, 196, 208
- ionization chamber, V, VI, 43, 58, 102, 103, 125, 147, 149, 150, 153, 154, 158–162, 181, 182, 184–186, 190
- kerma, 141, 142, 145, 158, 159, 180, 184, 185, 225–229, 246–248, 250, 253–260
- lepton, 47
- lethal dose, 192, 193, 199, 201
- linear accelerator, 48, 156–158, 225, 226
- metastable level, 3, 15
- neutron capture, 10
- normal distribution, 91, 92
- nuclide, 6, 8, 11, 13, 14, 22, 144
- path length, 39, 40, 102, 106, 123, 153, 160, 188, 189
- perturbation factor, 150
- phantom, 41, 49, 72, 74, 141, 144, 150, 153–160, 171, 173–175, 179, 180
- photocathode, 103, 104, 131
- photoelectric effect, 31, 32, 35, 36, 45, 50, 61–63, 70, 71, 73, 75, 78, 79, 84, 85, 88, 89, 148
- photoelectron, 36, 62, 104, 131
- photomultiplier tube, 97
- plating efficiency, 191, 198
- point kernel, 214
- poisson distribution, 91–93, 192, 200
- positrons, 28, 33, 44, 47, 60–63, 74, 76, 84, 139, 228, 253, 254
- proliferating cells, 191
- radiance, 29
- relaxation length, 31
- repopulation, 202
- residual range, 60, 164–166
- resolving time, 94, 95, 101, 102, 119, 120
- restricted cema, 142
- retention equation, 222, 238
- scintillation detector, 97, 98, 100, 101, 153, 154, 161, 162
- secular equilibrium, 2, 7
- sievert integral, 217, 252, 267
- solid angle, 29, 30, 36, 42, 94
- standard deviation, 91–93, 96, 98–100, 105–116, 118, 132
- surviving fraction, 191, 198, 199
- target atom, 2
- transient equilibrium, 2
- uncharged particles, 28, 30, 32, 139, 141, 142, 161