Appendix 2

Definition and conversion of physical units

Physical quantity	Name of unit and symbol
Activity A	$1\,\text{Becquerel (Bq)} = 1$ decay per second (s^{-1}) $1\,\text{Curie (Ci)} = 3.7 \cdot 10^{10}\,\text{Bq}$
Work, energy W	$1\,\text{Joule (J)} = 1\,\text{W s} = 1\,\text{N m}$ $1\,\text{erg} = 10^{-7}\,\text{J}$ $1\,\text{eV} = 1.602\,177 \cdot 10^{-19}\,\text{J}$ $1\,\text{cal} = 4.185\,5\,\text{J}$ $\text{kT at } 300\,\text{K} = 25.85\,\text{MeV} = 1/38.68\,\text{eV}$
Density ϱ	$1\,\text{kg/m}^3 = 10^{-3}\,\text{g/cm}^3$
Pressure* p	$1\,\text{Pascal (Pa)} = 1\,\text{N/m}^2$ $1\,\text{bar} = 10^5\,\text{Pa}$ $1\,\text{atm} = 1.013\,25 \cdot 10^5\,\text{Pa}$ $1\,\text{Torr (mm Hg)} = 1.333\,224 \cdot 10^2\,\text{Pa}$ $1\,\text{kp/m}^2 = 9.806\,65\,\text{Pa}$
Unit of absorbed dose D	$1\,\text{Gray (Gy)} = 1\,\text{J/kg}$ $1\,\text{rad} = 0.01\,\text{Gy}$
Unit of equivalent dose H	$1\,\text{Sievert (Sv)} = 1\,\text{J/kg}$ ($H\ \{\text{Sv}\} = RBE \cdot D\ \{\text{Gy}\}$; $RBE =$ relative biological effectiveness) $1\,\text{rem} = 0.01\,\text{Sv}$
Unit of ion dose I	$1\,\text{I} = 1\,\text{C/kg}$ $1\,\text{Röntgen (R)} = 2.58 \cdot 10^{-4}\,\text{C/kg}$ $= 8.77 \cdot 10^{-3}\,\text{Gy}$ (for absorption in air)

* kp stands for kilopond; it is the weight of 1 kg on Earth, i.e. $1\,\text{kp} = 1\,\text{kg} \cdot g$, where g is the acceleration due to gravity, $g = 9.806\,65\,\text{m s}^{-2}$.

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Entropy S	$1\,\mathrm{J/K}$
Electric field strength E	$1\,\mathrm{V/m}$
Magnetic field strength H	$1\,\mathrm{A/m}$ $1\,\text{Oersted (Oe)} = 79.58\,\mathrm{A/m}$
Magnetic induction B	$1\,\text{Tesla (T)} = 1\,\mathrm{V\,s/m^2} = 1\,\mathrm{Wb/m^2}$ $1\,\text{Gauss (G)} = 10^{-4}\,\mathrm{T}$
Magnetic flux Φ_m	$1\,\text{Weber (Wb)} = 1\,\mathrm{V\,s}$
Inductance L	$1\,\text{Henry (H)} = 1\,\mathrm{V\,s/A} = 1\,\mathrm{Wb/A}$
Capacitance C	$1\,\text{Farad (F)} = 1\,\mathrm{C/V}$
Force F	$1\,\text{Newton (N)} = 10^5\,\mathrm{dyn}$
Length l	$1\,\text{inch} = 0.0254\,\mathrm{m}$ $1\,\mathrm{m} = 10^{10}$ Ångström (Å) $1\,\text{fermi (fm)} = 10^{-15}\,\mathrm{m}$ $(= 1$ femtometre$)$ $1\,\text{astronomical unit (AU)}$ † $= 149\,597\,870\,\mathrm{km}$ $1\,\text{parsec (pc)} = 3.085\,68 \cdot 10^{16}\,\mathrm{m}$ $= 3.26$ light-years $= 1\,\mathrm{AU}/1\,\text{arcsec}$ $1\,\text{light-year (ly)} = 0.3066\,\mathrm{pc}$
Power P	$1\,\text{Watt (W)} = 1\,\mathrm{N\,m/s} = 1\,\mathrm{J/s}$
Mass m	$1\,\mathrm{kg} = 10^3\,\mathrm{g}$
Electric potential U	1 Volt (V)
Electric current I	$1\,\text{Ampère (A)} = 1\,\mathrm{C/s}$
Charge Q	1 Coulomb (C) $1\,\mathrm{C} = 2.997\,924\,58 \cdot 10^9$ electrostatic charge units (esu)
Temperature T	1 Kelvin (K) Celsius (°C); $T\ \{°\mathrm{C}\} = T\ \{\mathrm{K}\} - 273.15\,\mathrm{K}$
Electric resistance R	$1\,\text{Ohm}\ (\Omega) = 1\,\mathrm{V/A}$
Specific resistivity ϱ	$1\,\Omega\,\mathrm{cm}$
Time t	$1\,\mathrm{s}$
Cross section σ	$1\,\text{barn} = 10^{-24}\,\mathrm{cm^2}$

† Fixed by the International Astronomical Union 1996.

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