

Gaussian Units

Unit Conversions

Measurements	Units	Conversion	SI
Distance	cm	10^{-2}	m
Mass	g	10^{-3}	kg
Time	s	1	s
Force	dyne	10^{-5}	N
Energy	erg	10^{-7}	J
Power	erg/s	10^{-7}	W
Charge	esu	3.336×10^{-10}	C
Electric Potential	statvolt	299.79	V
Magnetic Field	Gauss	10^{-4}	T

- $1 \text{ eV} = 1.6022 \times 10^{-12} \text{ erg} = 1.602 \times 10^{-19} \text{ J}$
- $1 \text{ Ry} = 13.6057 \text{ eV}$ (ionization energy of hydrogen)
- $1 \text{ C} = 2.9979 \times 10^9 \text{ esu}$, $1 \text{ statcoul} = 1 \text{ esu}$
- $1 \text{ \AA} = 10^{-10} \text{ m}$
- $1 \text{ eV}/c^2 = 1.7827 \times 10^{-36} \text{ kg}$
- $(\mu_0 \epsilon_0)^{-1/2} = 299,792,458 \text{ m/s}$; $(\mu_0/\epsilon_0)^{1/2} \approx 377 \Omega$
- $e^2 \text{ (Gaussian)} \Rightarrow \frac{e^2}{4\pi\epsilon_0} \text{ (SI)}$

Physical Constants

Atomic Mass Unit:	M	$= 1.6605 \times 10^{-24} \text{ g}$
Bohr radius	a_0	$= 5.2918 \times 10^{-9} \text{ cm}$
Bohr Magneton	μ_B	$= 5.7884 \times 10^{-9} \text{ eV/G}$ $= 9.2740 \times 10^{-21} \text{ erg/G}$
Boltzmann Constant:	k_B	$= 1.3803 \times 10^{-16} \text{ erg/K}$ $= 8.6173 \times 10^{-5} \text{ eV/K}$
Electron Mass:	m_e	$= 9.1095 \times 10^{-28} \text{ g}$ $= 0.5110 \text{ MeV}/c^2$
Elementary Charge:	e	$= 4.8032 \times 10^{-10} \text{ esu}$
Gravitational Constant:	G	$= 6.6738 \times 10^{-8} \text{ dyne} \cdot \text{cm}^2/\text{g}^2$
Neutron Mass:	m_n	$= 1.6749 \times 10^{-24} \text{ g}$ $= 939.57 \text{ MeV}/c^2$
Planck's Constant:	h	$= 6.6262 \times 10^{-27} \text{ erg} \cdot \text{s}$
	\hbar	$= 1.0546 \times 10^{-27} \text{ erg s}$ $= 6.5821 \times 10^{-16} \text{ eV s}$
Proton Mass:	m_p	$= 1.6726 \times 10^{-24} \text{ g}$ $= 938.27 \text{ MeV}/c^2$
Speed of Light:	c	$= 2.9979 \times 10^{10} \text{ cm/s}$