Important constants

Lecture Physics of materials, H. S. Leipner

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Name	Symbol	Value
Avogadro constant	N_A	$6.02252 \cdot 10^{23}\,\text{mol}^{-1}$
Bohr radius[1]	a_0	$5.2917706 \cdot 10^{-11}\,\text{m}$
Boltzmann constant	k_B	$1.380662 \cdot 10^{-23}\,\text{J/K}$
Dielectricity constant of the vacuum	ε_0	$8.85418782 \cdot 10^{-12}\,\text{F/m}$
Elementary charge	e	$1.6021892 \cdot 10^{-19}\,\text{C}$
Molar gas constant[2]	R	$8.31\,\text{J}\,\text{K}^{-1}\text{mol}^{-1}$
Permeability of the vacuum[3]	μ_0	$12.566771 \cdot 10^{-7}\,\text{H/m}$
Planck's constant[4]	h	$6.626176 \cdot 10^{-34}\,\text{J}\,\text{s}$
Rest mass of the electron	m_e	$9.109534 \cdot 10^{-31}\,\text{kg}$
Rest mass of the proton	m_p	$1.6726485 \cdot 10^{-27}\,\text{kg}$
Rydberg constant[5]	R_∞	$1.097373177 \cdot 10^{7}\,\text{m}^{-1}$
Speed of light in the vacuum	c	$2.99792458 \cdot 10^{8}\,\text{m/s}$

Units

$C = A\,s$	(Coulomb)
$F = kg^{-1}\,m^{-2}\,s^4\,A^2$	(Farad)
$J = kg\,m^2\,s^{-2}$	(Joule)
$H = A\,m^{-1}$	(Henry)

Comments

1) corresponds to the 1st Bohr radius r_1
2) $R = N_A k_B$
3) $\mu_0 = 4\pi \cdot 10^{-7}\,\text{H/m}$ (exact)
4) $\hbar = \frac{h}{2\pi} = 1.0545887 \cdot 10^{-34}\,\text{J s}$
5) $R_\infty = \frac{m_e e^4}{8\varepsilon_0^2 h^2}$