

# **Useful Physical Constants and Materials Properties**

## **Physical Constants**

<b>Constant</b>	<b>Symbol</b>	<b>Value</b>	<b>Units</b>
Avogadro's number	$N_A$	$6.022 \times 10^{23}$	Mole <sup>-1</sup> (M <sup>-1</sup> )
Boltzmann's constant	$k_B$	$1.381 \times 10^{-23}$	Joule/Kelvin (J/K)
Electron charge	$q$	$1.602 \times 10^{-19}$	Coulomb (C)
Electron rest mass	$m_0$	$9.11 \times 10^{-31}$	kg
Electron volt	$eV$	$1.602 \times 10^{-19}$	Joules (J)
Fine structure constant	$\alpha$	0.0073	
Gyromagnetic ratio of electron	$g_e$	2.002	
Permittivity of free space	$\epsilon_0$	$8.85 \times 10^{-14}$	Farad/cm (F/cm)
Planck's constant	$h$	$6.626 \times 10^{-34}$	Joule-s (J-s)
Reduced Planck's constant	$\hbar$	$1.054 \times 10^{-34}$	J-s
Speed of light in vacuum	$c$	$2.998 \times 10^{10}$	cm/s