

| Physical Constants [cgs/atomic unit preferred mostly] | | | | | | | Note |
|---|--|-----------|--------------------|-------------|--------------------|------------|---|
| \hbar | \hbar | 6.6e-16 | eV sec | 6.586E-16 | eV sec | 1.055E-27 | erg sec |
| $\hbar c$ | $\hbar c$ | 2.0e-5 | eV cm | 1.973E-05 | eV cm | 1973 | eV Å |
| c | | 3.0e10 | cm/sec | | | 2.998E+10 | cm/sec |
| k_B | | 0.086 | meV/K | 8.6171E-05 | eV/K | 1.3802E-16 | erg/K |
| m_e | | 0.51 | MeV/c ² | 0.511 | MeV/c ² | 9.110E-28 | g |
| m_p | | 940 | MeV/c ² | 938.3 | MeV/c ² | 1.673E-24 | g |
| e | | | | | | 4.803E-10 | esu |
| $e^2/(\hbar c)$ | $e^2/\hbar c$ | 1/137 | | 1/137.0 | | | fine structure const. |
| $h/(2e^2)$ | | 13 | kΩ | 12.906 | kΩ | | SI unit! |
| μ_B | | 6e-9 | eV/gauss | 5.789E-09 | eV/gauss | 9.274E-21 | erg/gauss $e\hbar/(2m_e c)$ $e\hbar/2m_e c$ |
| μ_N | | 3.2e-12 | eV/gauss | 3.153E-12 | eV/gauss | 5.051E-24 | erg/gauss $e\hbar/(2m_p c)$ $e\hbar/2m_p c$ |
| a_B | | 0.529 | Å | 0.5292 | Å | 5.292E-09 | cm $\hbar^2/(m_e e^2)$ $\hbar^2/m_e e^2$ |
| λ_e | | 3.9e-3 | Å | 3.862E-03 | Å | 3.862E-11 | cm $\hbar/(m_e c)$ $\hbar/m_e c$ |
| λ_p | | 0.21 | fm | 0.2103 | fm | 2.103E-14 | cm $\hbar/(m_p c)$ $\hbar/m_p c$ |
| N_0 | | 6.0e23 | | 6.02252E+23 | | | |
| Conversion Factors, etc. | | | | | | | |
| Rydberg | | 13.6 | eV | 13.60569193 | eV | | $e^2/(2a_B)$ |
| THz | | 4.1 | meV | 4.138 | meV | | v |
| PetaHz | | 4.1 | eV | 4.138 | eV | | v |
| eV | | 0.24 | femtosec | 0.2417 | femtosec | | T |
| cm ⁻¹ | | 0.12398 | meV | 1.2398E-04 | eV | | 1/λ |
| Å ⁻¹ | | 12398 | eV | | | | E(eV)=12398/λ(Å) |
| Visible light | | 0.4 - 0.7 | μm | 3.1 - 1.8 | eV | | |
| (Ωcm) ⁻¹ (SI) | | 9e11 | Hz (cgs) | 9.E+11 | Hz (cgs) | | |
| eV | | 1.6e-12 | erg | 1.602E-12 | erg | 1.602E-12 | emu |
| erg | | 6.2e11 | eV | 6.242E+11 | eV | | |
| cal | | 2.6e19 | eV | 2.612E+19 | eV | 4.184E+07 | erg |
| atm | | 15 | psi | 14.697 | psi | 1033.2 | gm/cm ² |
| Room temp | | 300 | K | 25.85 | meV | | |
| IMPORTANT | The above tables generally prefer cgs definitions and units. | | | | | | |
| | Kittel's ISSP or Jackson's E&M are good refs for unit conversions. | | | | | | |