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Elektromos sugárzás energiája

$$E = h\nu = hc\frac{1}{\lambda}. \tag{1.1}$$

Planck's constant $h = 6.626 \times 10^{-34}$ Js; the speed of light $c \approx 3 \times 10^8$ m/s.

$hc \approx 19.86 \times 10^{-26}\ Jm$
1eV $\approx 1.6 \times 10^{-19}\ J$

$\mathbf{E[eV] \approx 1.24 \times 10^{-6} \cdot \frac{1}{\lambda[m]}\ eVm}$.

Example: a lower energy gamma photon's wavelength is $\approx 10^{-12}m$, thus:

$$E_\gamma[eV] = 1.24 \times 10^{-6} \cdot \frac{1}{10^{-12}} = 1.24\ MeV. \tag{1.2}$$

The energies of visible photons are in the range of: $1.6\ eV \to 3.4\ eV$, thus approximately $E_\gamma = 10^6 \times E_{vis}$.

Thermal energy, at room temperature: T=20 $°C$: 1/40 ev = 25 meV.

Energy temperature correspondence:

$$E = k_b \cdot T, \tag{1.3}$$

where k_b is the Boltzmann-constant $k_b = 1.38 \times 10^{-23} J/K$.
The temperature can be calculated as:

$$T[K] = \frac{E[eV]}{k_b} \tag{1.4}$$

For visible light ($E_{vis} \approx 1.6\ eV$) $T \approx 10^4$ K.
1 eV → $\mathbf{10^4}$ K.