

Table of contents

Energy manifestation forms: Change (Transfer Movement), Potential (Rest Duration), Temperature, Light, Sound, Mass, Charge, Information, Communication, ...

Energy Total:

$$\begin{aligned}
 E_{Tot} &= motion + rest = linear + rotational + vibration + spin + \dots = \\
 Work + Heat &change = (F \cdot \Delta r) \mp \Delta Q = E_{kin} + E_{pot} = E_{magn} + E_{elec} = pv \\
 &\stackrel{\text{macro(continuum)}}{=} \\
 \frac{1}{2} \frac{p^2}{m} &= \frac{1}{2} m (\omega A)^2 \\
 &\stackrel{\text{thermal}}{=} \frac{1}{2} f b T \stackrel{\text{micro(quantum)}}{=} \\
 \hbar\omega &= h\nu = \frac{1}{2} \frac{(\hbar k)^2}{m} \stackrel{\text{relativistic}}{=} \\
 &\sqrt{(pc)^2 + (mc^2)^2} \stackrel{\text{Entropy}}{=} \\
 &\stackrel{\text{distributionFermion}}{=} \\
 &\dots \stackrel{\text{distributionBoson}}{=} \\
 &\dots \stackrel{\text{distributionBoltzmann}}{=} \\
 &\dots
 \end{aligned} \tag{1}$$