Classical Constants

Classical Constants

Since energy and force equations are simplified to only five *wave* constants when using the wave constant form, it is also possible to rewrite most equations, and all fundamental physical constants based on the electron, with only five fundamental *classical* constants. This removes unnecessary proportionality constants like the gravitational constant (G) and the Planck constant (h). Furthermore, all units can be simplified to only three SI units (kg, m, s).

Five Fundamental Physical Constants & Mathematical Constants

The following are the **five** fundamental physical constants from which 20 electron-based fundamental physical constants can be derived from on this site. *Note*: the fine structure constant is currently defined in modern physics to be a physical constant, but it is derived based on a geometric ratio (pi) and is therefore considered a mathematical constant, as explained here.

Symbol	Definition	Value (units)
	Five Fundamental Physical Constants	
l_P	Planck length	1.6162×10^{-35} (m)

t_P	Planck time	5.3912×10^{-44} (s)
m_P	Planck mass	2.1765×10^{-8} (kg)
q_P	Planck charge	1.8755×10^{-18} (m)**
r_e	Electron classical radius	2.8179×10^{-15} (m)

Mathematical Constants

α_e	Fine structure constant	0.00729735 (*dimensionless*)
π	Pi	3.141592653 (*dimensionless*)
e	Euler's number	2.718281828 (*dimensionless*)

Other Classical Constants

Other classical constants are used throughout this site either for readability or consistency with classical equations. However, they can be derived from the five fundamental constants (above). A list of the constants, and the links to their derivations, are found here.

Symbol	Definition	Value (units)
E_v	Neutrino energy	3.8280×10^{-19} (kg m^2/s^2)***
E_e	Electron energy	8.1871×10^{-14} (kg m^2/s^2)
ε_0	Electric constant	8.8542×10^{-12} (s^2/kg m)**
μ_0	Magnetic constant*	1.2566×10^{-6} (kg/m)**

c	Speed of light*	299,792,458 (m/s)
a_0	Bohr radius*	5.2918×10^{-11} (m)
e_e	Elementary charge*	1.6022×10^{-19} (m)**
α_{Ge}	Gravitational coupling constant – electron	2.40×10^{-43} (*dimensionless*)
α_{Gp}	Gravitational coupling constant – proton	8.09×10^{-37} (*dimensionless*)
Q	Particle count (in a group)	variable – *dimensionless*

* Used as a constant in the derivation of one of the five fundamental constants (circular derivation).

** Corrected units in EWT as charge (Coulombs) is replaced by distance (meters).

*** The exact rest energy of the neutrino is not determined. The value listed here is the best fit for particle energies.

Energy Wave Equations – Classical Format

The key equations from energy wave theory can be described in a format using classical constants, all of which can ultimately be derived from the five fundamental constants as described above. There are some differences between the wave format and classical format, notably: 1) the wave format can calculate the energy of the neutrino (E_v), which is ultimately used to calculate the energy of all other particles, and 2) the wave format can derive relativity from the fundamental constant of wavelength, whereas the classical constants do not have such an equivalent.

Energy

The following energy equations can be used for the calculations of particles and photons. Because neither mass or charge are used as variables, the dimensionless variables for wave center count (K) and amplitude factor (δ) are used from the wave constant format.

$$E_{l(K)} = E_v (K)^5 \sum_{n=1}^{K} \frac{n^3 - (n-1)^3}{n^4}$$

Longitudinal Energy Equation

(Particles)

$$E_t = \frac{1}{2} E_e r_e \left(\frac{\delta}{r} - \frac{\delta}{r_0} \right)$$

Transverse Energy Equation

(Photons)

Forces

The following are the equations for forces used in energy wave theory. Because neither mass or charge are used as variables, the dimensionless variable for particle group count (Q) is used from the wave constant format.

$$F = E_e \frac{Q_1 r_e}{r} \frac{Q_2}{r}$$

Electric Force

$$F = m_e v^2 \frac{Q_1 r_e}{r} \frac{Q_2}{r}$$

Magnetic Force

$$F = E_e \frac{Q_1 r_e \alpha_{Gp}}{r} \frac{Q_2}{r}$$

Gravitational Force

$$F = E_e \frac{Q_1 r_e}{\alpha_e r} \frac{Q_2}{r}$$

Strong Force

$$F = E_e \left(\frac{Q_1 r_e}{\alpha_e r} \right)^2 \frac{Q_2}{r}$$

Orbital Force

Photon Frequency and Wavelength

The following are equations that are used to calculate photon frequencies and wavelengths. Because neither mass or charge are used as variables, the dimensionless variable for amplitude factor (δ) is used from the wave constant format. See the following for: variables for amplitude factor (δ) and distance (r).

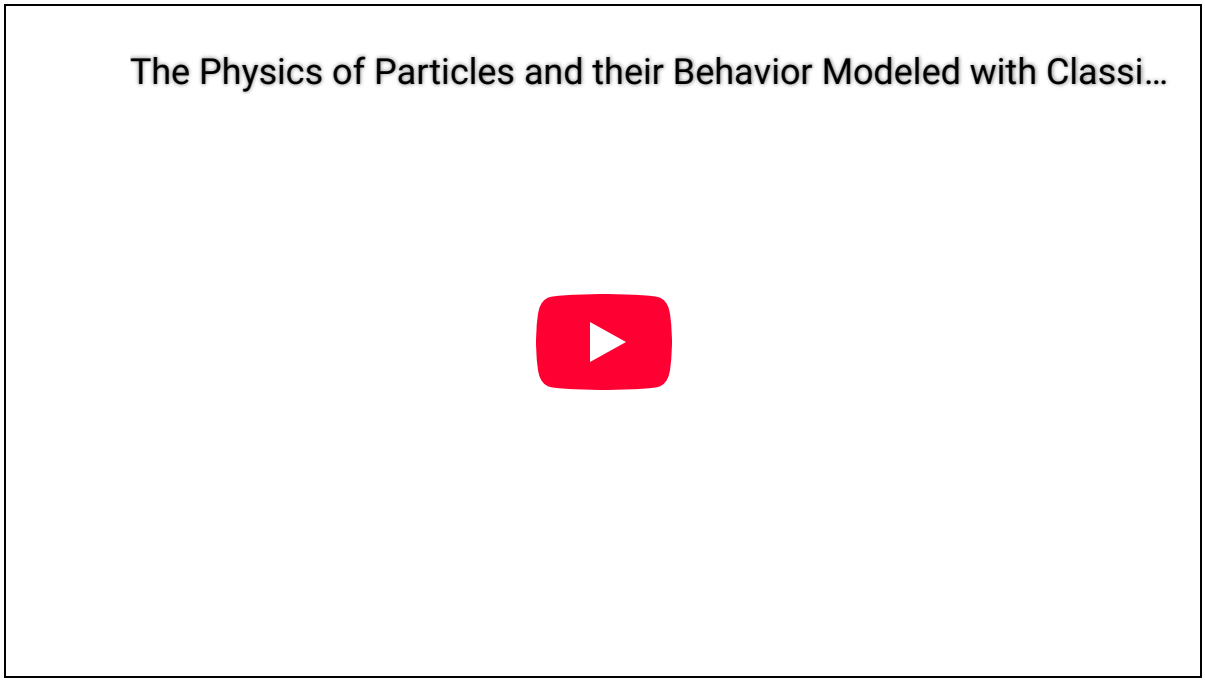
$$f = \frac{\alpha_e c}{4\pi} \left(\frac{\delta}{r} - \frac{\delta}{r_0} \right)$$

Photon Frequency

$$\lambda_t = \frac{4\pi}{\alpha_e}\left(\frac{1}{\frac{\delta}{r} - \frac{\delta}{r_0}}\right)$$

Photon Wavelength

Video Summary



Previous: Constants and Equations **Next: Theory Comparison**