

$\hbar=l_p m_p c$

$G=\frac{l_p}{m_p} c^2$

Traditional formula

NEW FOUNDATIONS MODEL

Maximum Potential	Proportionality Operators			Natural Formula
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<i>length</i>	<i>mass</i>	<i>time</i>	$\frac{\Delta x}{\Delta t}$
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Mechanics

Photon momentum	$p_\gamma = \frac{\hbar}{\lambda}$	$p_p$	$\frac{l_p}{\lambda}$			$p=p_p \frac{l_p}{\lambda}$
Photon energy	$E_\gamma = \frac{\hbar c}{\lambda}$	$E_p$	$\frac{l_p}{\lambda}$			$E=E_p \frac{l_p}{\lambda}$
Compton wavelength	$\lambda_c = \frac{\hbar}{mc}$	$l_p$		$\frac{m_0}{m_p}$		$\lambda = l_p \frac{m_p}{m_0}$
de Broglie wavelength	$\lambda = \frac{\hbar}{mv}$	$l_p$		$\frac{m_0}{m_p}$	$\frac{v}{c}$	$\lambda = l_p \frac{m_p}{m_0} \frac{c}{v}$
Momentum	$p=mv$	$p_p$	$\frac{l_p}{\lambda}$			$p=p_p \frac{l_p}{\lambda}$
Kinetic energy	$E_k = \frac{1}{2}mv^2$	$E_p$	$\frac{l_p}{\lambda}$		$\frac{v}{c}$	$E_k=E_p \frac{1}{2} \frac{l_p}{\lambda} \frac{v}{c}$

Gravitation

Schwarzschild radius	$r_s = \frac{2GM}{c^2}$	$l_p$		$\frac{M}{m_p}$		$r = l_p \ 2 \frac{M}{m_p}$
Escape velocity	$v_e = \left(\frac{-2GM}{r}\right)^{\frac{1}{2}}$	$\frac{l_p}{t_p}$	$\frac{l_p}{r}$	$\frac{M}{m_p}$		$v = \frac{l_p}{t_p} \left(2 \frac{l_p}{r} \frac{M}{m_p}\right)^{\frac{1}{2}}$
Energy potential	$U_g = \frac{-GMm}{r}$	$E_p$	$\frac{l_p}{r}$	$\frac{M}{m_p} \frac{m}{m_p}$		$E=E_p \frac{l_p}{r} \frac{M}{m_p} \frac{m}{m_p}$
Acceleration potential	$g = \frac{-GM}{r^2}$	$a_p$	$\frac{l_p}{r} \ \frac{l_p}{r}$	$\frac{M}{m_p}$		$a=a_p \frac{l_p}{r} \frac{l_p}{r} \frac{M}{m_p}$
Force potential	$F = \frac{-GMm}{r^2}$	$F_p$	$\frac{l_p}{r} \ \frac{l_p}{r}$	$\frac{M}{m_p} \frac{m}{m_p}$		$F=F_p \frac{l_p}{r} \frac{l_p}{r} \frac{M}{m_p} \frac{m}{m_p}$
Black hole energy (k <sub>B</sub> T)	$k_B T = \frac{\hbar c^3}{8\pi GM}$	$E_p$		$\frac{m_p}{M}$		$E=E_p \frac{1}{8\pi} \frac{m_p}{M}$

Electromagnetism

Electrostatic potential	$F=k_e \frac{q_1 q_2}{r^2}$	$F_p$	$\frac{l_p}{r} \ \frac{l_p}{r}$		$\frac{t_p}{t} \ \frac{t_p}{t}$	$F=F_p \frac{l_p}{r} \frac{l_p}{r} \frac{t^*}{t_p} \frac{t^*}{t_p}$
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$l_p$  = Planck length

$t_p$  = Planck time

$E_p$  = Planck energy

$F_p$  = Planck force

$m_p$  = Planck mass

$p_p$  = Planck momentum

$a_p$  = Planck acceleration

\*1  $C = 2.874 \times 10^{-26} \ s$