

Particle in Uniform Electric or Gravitational Field



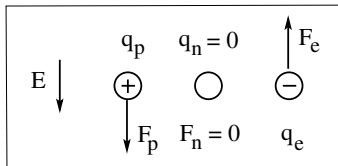
particle	charge	mass
electron	$q_e = -e$	$m_e = 9.109 \times 10^{-31} \text{kg}$
proton	$q_p = +e$	$m_p = 1.673 \times 10^{-27} \text{kg}$
neutron	$q_n = 0$	$m_n = 1.675 \times 10^{-27} \text{kg}$

Elementary charge:

$$e = 1.602 \times 10^{-19} \text{C}.$$

Electric field

- equation of motion: $\vec{F} = m\vec{a}$
- force law: $\vec{F} = q\vec{E}$
- acceleration: $\vec{a} = (q/m)\vec{E}$



Gravitational field

- equation of motion: $\vec{F} = m\vec{a}$
- force law: $\vec{F} = m\vec{g}$
- acceleration: $\vec{a} = \vec{g}$

