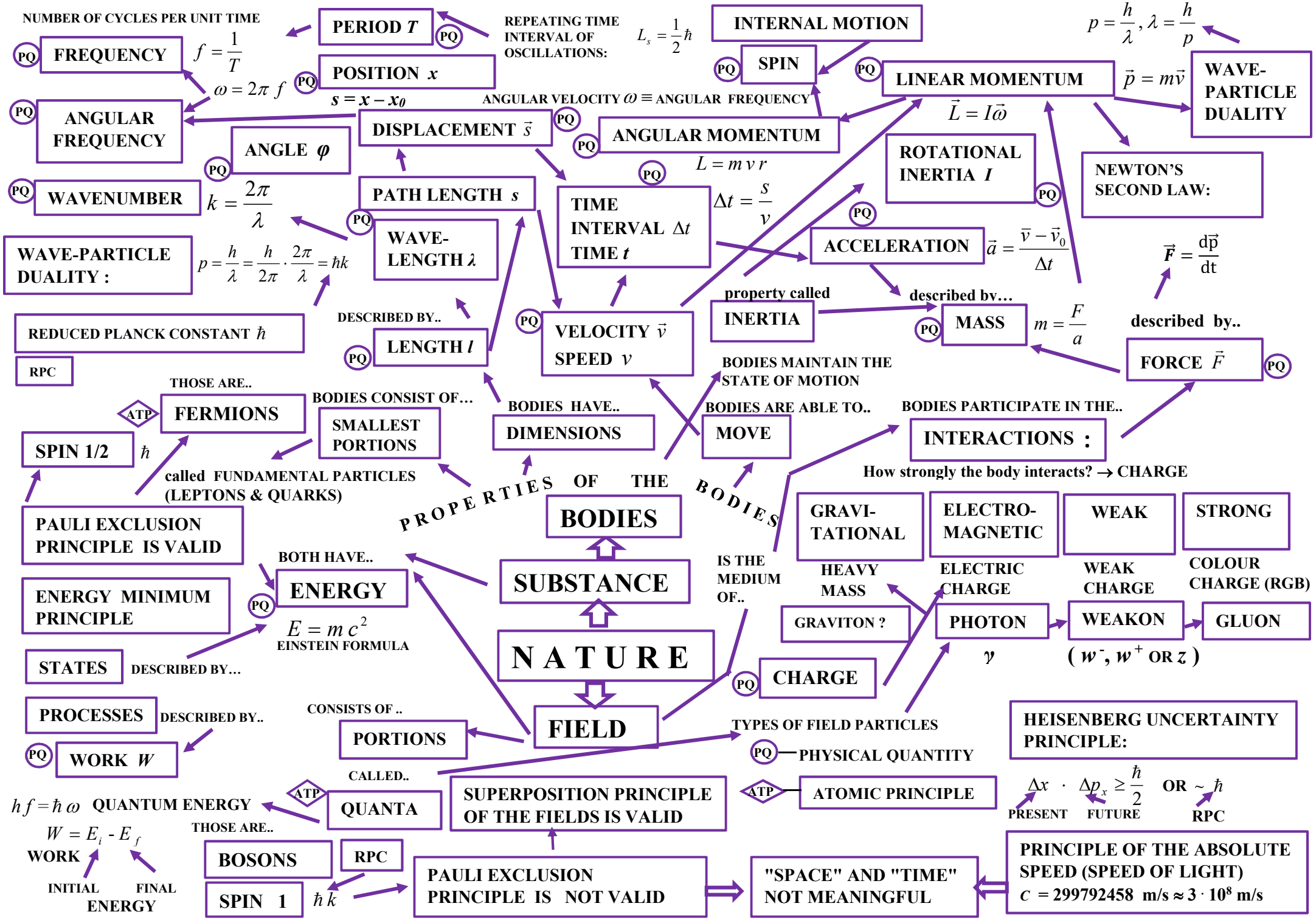
NUMBER OF CYCLES PER UNIT TIME
PQ FREQUENCY $f = \frac{1}{T}$
$\omega = 2\pi f$
PERIOD T PQ
REPEATING TIME INTERVAL OF OSCILLATIONS: $L_s = \frac{1}{2}\hbar$
PQ POSITION x
$s = x - x_0$
PQ ANGULAR FREQUENCY
ANGULAR VELOCITY $\omega \equiv$ ANGULAR FREQUENCY
DISPLACEMENT $\vec{s}$ PQ
ANGLE φ PQ
PQ WAVENUMBER $k = \frac{2\pi}{\lambda}$
PATH LENGTH s
PQ WAVE-LENGTH λ
WAVE-PARTICLE DUALITY : $p = \frac{h}{\lambda} = \frac{h}{2\pi} \cdot \frac{2\pi}{\lambda} = \hbar k$
REDUCED PLANCK CONSTANT $\hbar$
RPC
DESCRIBED BY..
PQ LENGTH l
PQ TIME INTERVAL Δt TIME t
$\Delta t = \frac{s}{v}$
PQ VELOCITY $\vec{v}$ SPEED v
INTERNAL MOTION
PQ SPIN
PQ ANGULAR MOMENTUM
$L = m v r$
PQ LINEAR MOMENTUM
$\vec{L} = I\vec{\omega}$
$\vec{p} = m\vec{v}$
$p = \frac{h}{\lambda}, \lambda = \frac{h}{p}$
WAVE-PARTICLE DUALITY
ROTATIONAL INERTIA I PQ
NEWTON'S SECOND LAW:
$\vec{F} = \frac{d\vec{p}}{dt}$
PQ ACCELERATION $\vec{a} = \frac{\vec{v} - \vec{v}_0}{\Delta t}$
property called
INERTIA
described by...
PQ MASS $m = \frac{F}{a}$
described by..
FORCE $\vec{F}$ PQ
BODIES MAINTAIN THE STATE OF MOTION
BODIES ARE ABLE TO..
MOVE
BODIES HAVE..
DIMENSIONS
BODIES CONSIST OF...
SMALLEST PORTIONS
THOSE ARE..
ATP FERMIONS
SPIN 1/2 $\hbar$
called FUNDAMENTAL PARTICLES (LEPTONS & QUARKS)
PAULI EXCLUSION PRINCIPLE IS VALID
BODIES PARTICIPATE IN THE..
INTERACTIONS :
How strongly the body interacts? → CHARGE
GRAVI-TATIONAL
ELECTRO-MAGNETIC
WEAK
STRONG
HEAVY MASS
ELECTRIC CHARGE
WEAK CHARGE
COLOUR CHARGE (RGB)
GRAVITON ?
PHOTON γ
WEAKON (w^-, w^+ OR z)
GLUON
PROPERTIES OF THE BODIES
BODIES
SUBSTANCE
NATURE
FIELD
IS THE MEDIUM OF..
BOTH HAVE..
ENERGY
PQ $E = m c^2$
EINSTEIN FORMULA
ENERGY MINIMUM PRINCIPLE
STATES
DESCRIBED BY...
PROCESSES
DESCRIBED BY..
PQ WORK W
CONSISTS OF ..
PORTIONS
CALLED..
ATP QUANTA
$hf = \hbar\omega$ QUANTUM ENERGY
$W = E_i - E_f$
WORK
INITIAL ENERGY
FINAL
THOSE ARE..
BOSONS
SPIN 1
RPC
$\hbar k$
SUPERPOSITION PRINCIPLE OF THE FIELDS IS VALID
PAULI EXCLUSION PRINCIPLE IS NOT VALID
TYPES OF FIELD PARTICLES
PQ PHYSICAL QUANTITY
CHARGE
ATP ATOMIC PRINCIPLE
"SPACE" AND "TIME" NOT MEANINGFUL
HEISENBERG UNCERTAINTY PRINCIPLE:
$\Delta x \cdot \Delta p_x \geq \frac{\hbar}{2}$ OR ~ $\hbar$
PRESENT
FUTURE
RPC
PRINCIPLE OF THE ABSOLUTE SPEED (SPEED OF LIGHT)
c = 299792458 m/s ≈ 3 · 10^8 m/s