

Dimensions and Frequency

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Many systems of units exist but the system presented below (with dimensionless fine structure “constant” α as **not** fixed) is free of strange properties such as the half-dimension quantity introduced by the assumption of the dimensionless gravitational constant G .

- dimensionless “quantity” – conventional constant – c , \mathbf{h} , Q_e , R_H , k_B , σ_{SB} , Φ_m
- 1D quantity – dipole – \mathbf{x} , t , C , L , μ_B , a_0
- 2D quantity – quadrupole – S , σ , G , Q
- 3D quantity – octupole – V

The (derived) inverse-dimension quantities are termed as frequencies.

- 1F quantity – \mathbf{a} , \mathbf{p} , E , m , v , \mathbf{M} , I , U , T , φ , \mathbf{A}
- 2F quantity – \mathbf{F} , P , \mathbf{E} , \mathbf{H} , \mathbf{D} , \mathbf{B}
- 3F quantity – \mathbf{j}
- 4F quantity – p , ρ , I

To accomplish unity (the only 1F quantity) and integrity we can always equalize mass m with time frequency ν for all phenomena. Thus we can imagine an electron as a dimensionless amplitude (charge) Q_e with frequency ν corresponding to its rest mass. In practical use, we can select for example, a sinuous function in time oscillating between 0 and 2 multiples of Q_e . Now we have prepared a fully particle-wave dual background to elucidate many effects in the “classical” point of view. This leads to a possibility of a most fundamental interference (of charge) because other interferences are in higher order moments/coherences (the photon corresponds to two charges).

- the particle interference is the Doppler shift and the beat of intrinsic particle frequency (single fundamental particle interference is not possible because it enables arbitrarily to create/destroy the existence – a interference indicated in published experiments is carried out with the particle's electromagnetic image on the apparatus used.)
- an electron orbiting an atomic nucleus is in a stationary state (quantum interference condition) if the right whole number of charge oscillations are around and thus electromagnetic forces cancel out per revolution (relativistic corrections must be included).
- the required reduction of repulsion in the atomic nucleus of same-polarity charges exists at some places where the zero-value field wavefront acts on the maximum value of the second charge and thus a stable configuration of the nucleus is possible

Required verification (and probably a new metrological resource) is possible with the precise measurement of slow electrons in an electromagnetic trap (as a EHz frequency-dividing comb).

