FTL DRIVE ETC **205** 1983-8-22

Heisenberg's Uncertainty (Indeterminacy) Principle states that the product of uncertainties in position and velocity of an entity is not less than $h/2\pi$, where h = Planck's constant, equal to about 10^{-34} joule-second.

A particle-wave entity therefore has a (highly) precise velocity and (almost) completely indeterminate position, a highly precise position and almost completely indeterminate velocity, or both.

Therefore, an electromagnetic entity in space, e.g. photon, with a highly precise velocity 'c', has an almost indeterminate position, i.e. it tends to be "simultaneously" infinitely long if it is a ~~light~~ photon/light beam.

- Can this be used to pass information "faster than light"?
- Is the value of the uncertainty related, e.g. to the mass of the universe, so that it can yield a value for such a quantity?

Planck's constant

$E = h\nu$ if E = energy of a quantum of light, h = Planck's constant, ν = light frequency.

$h = 6.626196 \times 10^{-34}$ joule-second (SI) or 6.626196×10^{-27} erg-second (cgs)

(h-bar or Dirac-h is $h/2\pi$)

- erg is ~~the~~ work done by force of 1 dyne acting through 1 cm.
- dyne is force giving free mass of 1 gm acceleration of 1 cm per sec²

PRESSURE TRANSFER 1983-8-16

Look to the ear - 3 bones (malleus, incus, stapes)

working from eardrum - 'no ~~a~~ satisfactory engineering explanation of the details of this odd linkage ... in the literature'

Person with acute hearing can detect 0.3% difference over 20Hz - 16000Hz, a dynamic range of 800:1.

- Should be duplicatable mechanically.
- Look also at equivalent ~~for~~ very 'sharp-eared' creatures.