

FORMULATION

The central concept introduced in [1] is that space, rather than being an empty extension, is a nonmaterial and mobile entity which generates, with its irrotational vortex motion, 'velocity field' (VF), defined as the most fundamental universal field from which charge, mass and the associated electromagnetic and gravitational fields are produced. In Fig. 2A, an irrotational vortex of space and VF vector are shown. The non-material properties of space are continuity, incompressibility, nonviscosity and zero-mass.

The other postulate [1] is the limiting spin of space, defined as the ratio of the limiting speed of light (c) in absolute vacuum and the radius (re) of a spherial void created due to the breakdown of space (Fig. 2B) when spin reaches the limiting value [2]. The spherical void is a 'fieldless hole in space at the centre of electron. The electron structure, rather than being a point-charge, is an irrotational vortex of space around a central void.

Fundamental Equations on Electron's Charge and Mass.

Following fundamental equations derived from void-vortex structure of electron are relevant to the computation of rotational charge energy produced in the new machine.

REST-MASS OF ELEMENTAL DISC OF VOID, dvX SPEED OF CIRCULATING DM = SPACE AT THE INTERFACE

OF THE ELEMENT. $(\pi_{\rm e}^2\,{\rm SIN}^2\theta\;{\rm r_e}\,{\rm d}\theta)\;{\rm wr_e}\,{\rm SIN}\;\theta$

ELECTRONIC REST-MASS,

= $_{\mathrm{o}}\pi$ ncr $_{\mathrm{e}}$ 3 SIN 3 θ d θ = (4 π /3) r_{e} 3 e

DIMENSIONS OF me = LENGTH4/TIME

Refer Fig. 2B which shows spin of space at void-space interface. At the elemental surface, tangential velocity of space is $wr_e \sin \theta$, which increases to its limiting value c at the dimetrical section of the interface. The basic definitions for electron's charge, rest-mass and dilectric constant for vacuum are:

$$q_e = (\pi/4) (4 \pi r_e^2 c)$$
 (1) where

qe is the electron's charge re is the radius of spherical void

c is the light speed in vacuum Hence, it follows that the dimensions of qe are:

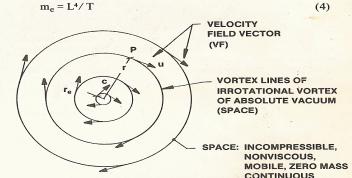
$$q_e = L^3/T \tag{2}$$

$$m_e = (4 \pi / 3) r_e^3 c$$
 (3)

where

me is the electron's rest-mass.

Hence, it follows that the dimensions for mass me are:



AT ANY POINT P OF A VORTEX LINE, ur = CONSTANT

WHEN $r = r_e$, u = cTHEREFORE, cre = CONSTANT, AND $u = r_e/r$

IRROTATIONAL VORTEX OF **ABSOLUTE VACUUM (SPACE)** (TWO DIMENSIONAL) FIG. - 2A

CHARGE ON ELEMENTAL RING SURFACE, dq = RING AREA x SPEED OF CIRCULATING SPACE ON RING SURFACE

 $dq = dA (Wr_e SIN \theta)$

ELECTRONIC CHARGE,

 $q_e = {}_0 \pi (2 \pi r_e SIN \theta r_e d \theta) (Wr_e SIN \theta)$

 $q_e = (\pi/4) (4 \pi r_e^2 c)$

 $c = wr_e$ VOID DIMENSIONS OF qe = LENGTH 3/TIME $d\theta$ SPACE-VOID INTERFACE $r_o d\theta$ **VOID CENTRE** SPACE $wr_e SIN \theta$ OF ELECTRON ANGULAR VELOCITY r_e SIN θ FIG. 2B OF INTERFACE ALONG, Y-Y' re SIN 0 VOID: FIELDLESS SPHERICAL HOLE IN SPACE. SPACE: NON-VISCOUS, MOBILE, ELEMENTAL CONTINUOUS, INCOMPRESSIBLE SURFACE, $dA = (2 \pi r_e SIN\theta) r_e d\theta$ VOID-RADIUS r_e

10 10 CM 17 $dv = (\pi r_e^2 \theta SIN^2 \theta) r_e d \theta$