1)

RESONANT COUNTER GRAVITATION

Notes for Paper 53, Part 1

The basic procedure is to amplify by resonance the interaction current defined by:

$$d \wedge (d \wedge A + \omega \wedge A) = \mu_0 j_{int} \quad -(1)$$

where:

$$j_{int} = \frac{A^{(0)}}{\mu_0} (R_{int} \wedge q - \omega \wedge T) \quad -(2)$$

$$= \frac{1}{\mu_0} (R_{int} \wedge A - \omega \wedge F)$$

$$= \frac{1}{\mu_0} (R_{int} \wedge A - \omega \wedge (d \wedge A + \omega \wedge A))$$

From (1) and (2):

$$d \wedge (d \wedge A + \omega \wedge A) + \omega \wedge (d \wedge A + \omega \wedge A) = R_{int} \wedge A = \mu_0 j_{int}$$

i.e.

$$\boxed{d \wedge (d \wedge A) + d \wedge (\omega \wedge A) + \omega \wedge (d \wedge A) + \omega \wedge (\omega \wedge A) = \mu_0 j_{int} = R_{int} \wedge A} \quad -(3)$$

This is a linear inhomogeneous differential equation with resonant solutions.

It is important to realize that j is the current induced by interaction between electromagnetism and gravitation. The basic engineering aim is to reduce gravity with an electromagnetic device.

2)

In the absence of interaction:

$$j_{int} = 0 \qquad - (4)$$

and there cannot be resonance amplification.

Pure Gravitation

$$R_g \wedge A = 0, \quad F = 0, \qquad - (5)$$

$$R_e = 0, \qquad - (6)$$

$$R_g = d \wedge \omega_g + \omega_g \wedge \omega_g. \qquad - (7)$$

where R_g is the Riemann form for gravitation, R_e is the Riemann form for electromagnetism, ω_g is the spin connection for gravitation, F is the electromagnetic field form.

Pure Electromagnetism

$$R_e \wedge A = \omega_e \wedge F, \qquad - (8)$$

$$R_e = d \wedge \omega_e + \omega_e \wedge \omega_e, \qquad - (9)$$

$$d \wedge F = 0, \qquad - (10)$$

$$R_g = 0. \qquad - (11)$$

In the presence of interaction:

$$R = R_g + R_e + R_{int}. \qquad - (12)$$

Thus if:

$$R_{int} = - R_g, \qquad - (13)$$

$$R = R_e, \qquad - (14)$$

and gravitation disappears because R has no central component. So the key equations are (3) and (13).