1)

Notes for Section 5 of Paper 49: Possible Gravitational Anomalies in the Solar System

Jensen has speculated on the possibility of small anomalies in the solar system. These are explained by postulating a mass dependent permeability. ECE theory produces exactly this result as follows.

Start with the Bianchi identity in the form:

$$d \wedge T^a = j^a \quad -(1)$$

where:

$$j^a = R^a{}_b \wedge q^b - \omega^a{}_b \wedge T^b \quad -(2)$$

In tensor notation eqn (1) is:

$$\partial_\mu \tilde{T}^{a\mu\nu} = \tilde{j}^{a\nu} \quad -(3)$$

where:

$$\tilde{T}^{\mu\nu} = \begin{bmatrix} 0 & -T_s^1 & -T_s^2 & -T_s^3 \\ T_s^1 & 0 & T_c^3 & -T_c^2 \\ T_s^2 & -T_c^3 & 0 & T_c^1 \\ T_s^3 & T_c^2 & -T_c^1 & 0 \end{bmatrix} \quad -(4)$$

In vector notation eqn. (1) is:

$$\boxed{\underline{\nabla} \times (\epsilon_r \underline{T}_0^a) + \frac{1}{c}\frac{\partial}{\partial t}\left(\frac{1}{\mu_r}\underline{T}_s^a\right) = \underline{0}} \quad -(5)$$

2)

Eqn. (5) follows from:

$$\underline{\nabla} \times \left(\epsilon_r \underline{E}^a \right) + \frac{\partial}{\partial t} \left(\frac{1}{\mu_r} \underline{B}^a \right) = \underline{0} \quad -(6)$$

using:

$$F^a = A^{(0)} T^a \quad -(7)$$

i.e.

$$B^a = A^{(0)} T^a \quad -(8)$$

$$E^a = c A^{(0)} T^a . \quad -(9)$$

Therefore eqn. (5) introduces ϵ_r and μ_r in a gravitational context.

<u>Einstein Hilbert Limit</u>

$$j^a = 0 \quad -(10)$$

$$R^a{}_b \wedge q^b = 0 \quad -(11)$$

$$T^a = 0 \quad -(12)$$

$$\epsilon_r \to 1 \quad -(13)$$

$$\mu_r \to 1 \quad -(14)$$

In general:

$$\boxed{\mu_r(x, y, z) = \frac{n^2}{\epsilon_r} \neq 1 .} \quad -(15)$$

<u>This is</u> Jensen's idea.