Magnetic Moments of Gravitating Bodies

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Abstract

The Dynamic Theory requires the two constants found in the study of the magnetic moments of spinning gravitating bodies.

I. INTRODUCTION

The Dynamic Theory's five-dimensional gauge field tensor requires that for all electrically neutral, gravitating bodies there be an equivalent charge given by $q = \beta M$, where $\beta = \sqrt{(\epsilon_0 G)}$. ϵ_0 is the dielectric constant of free space and G is the gravitational constant.

The Dynamic Theory also requires that all gravitating bodies must have a quantized spin given by $J = N_s \hbar'$, where N_s is the spin quantum number and $\hbar' = \frac{M^2 \beta^2}{4\pi\epsilon_0 \alpha c}$ is the effective unit of action and α is the fine structure constant.

II. DISCUSSION

By using the equivalent charge in the usual expression for the magnetic moment for a spinning charged body, one finds $\mu = \frac{\beta}{2} J$ where the constant of proportionality is Blackett's constant.

The angular momentum may be written as $J = N_s \hbar' = \frac{N_s M^2 \beta^2}{4\pi\epsilon_0 \alpha c}$. Notice that all bodies in the spin state $N_s = 1$ will exhibit a ratio $\frac{L}{M^2} = \frac{\beta^2}{4\pi\epsilon_0 \alpha c} = \frac{G}{4\pi \alpha c}$ which may be compared to Wesson's constant.

III. REFERENCES

1. Blackett, P.M.S., A Negative Experiment Relating to Magnetism and the Earth's Rotation," Phil. Trans. R. Soc. Lond. Series A, **897**, 309-370.

2. Wesson, P.S., "Clue to the Unification of Gravitation and Particle Physics," Phys. Rev. D, **23:8**, 1730-1734.