Power Production by Gravitomagnetic Effect on a Rotating Mass

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***Abstract*— The gravito-magnetic effect on rotating masses is well known. In the present work the possibility of extracting electrical energy from an electric motor-generator system is investigated. First of all a theoretical model is outlined which justifies the energy conversion. Subsequently, the experimental equipment used is described. Finally, the results of the experimental tests carried out are reported, with an interpretative analysis of the results obtained.**

***Index Terms*—Gravitomagnetic effect, renewable energy, energy conversion.**

Introduction

Field effects caused by moving matter are known as gravitomagnetism [1,2,3]. In recent decades, several experiments have been performed to measure rotational frame-dragging and gravitomagnetism in general, including the famous experiment with the LAGEOS and LAGEOS satellites, and the Tajmar experiments [4,5].

The Model

The equation for the Lorentz force, which in alternators drives electric charges along the windings of the conductor (stator) is:

$$F = q\,(E + v \times B) \qquad (1)$$

where q is the electric charge, v is the velocity of the charge, E is the electric field, and B is the magnetic induction.

The Heim Lorenz force representing the propulsive thrust is given by :

$$F_{gp} = -\Lambda_p\, e\, \mu_0\, \nu^T \times H \qquad (2)$$

where Λ_p indicates that only proton and neutron absorption processes were considered.

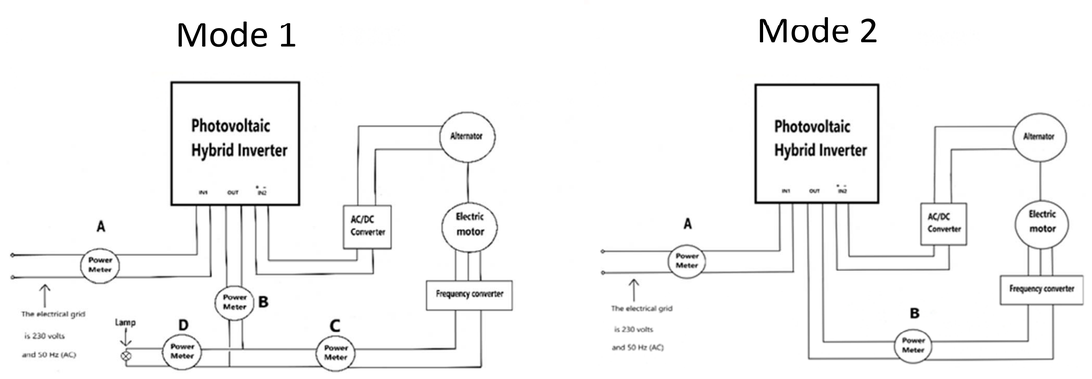
H a magnetic field

νT bulk velocity vector for rigid rotating ring in circumferential direction.

This article considers the gravitomagnetic effect in the magnetic rotors of alternators and the interaction between the magnetic fields of the stator and the rotor.

Experimental Apparatus

The experimental equipment consists of a hybrid inverter, such as those used for photovoltaic systems, an electric motor, an alternator, an AC/DC converter and four power meters placed in four points of the circuit.



Sketch of the experimental apparatus (mode 1: electric motor and lamps) (mode 2: electric motor without lamps)

Power meters

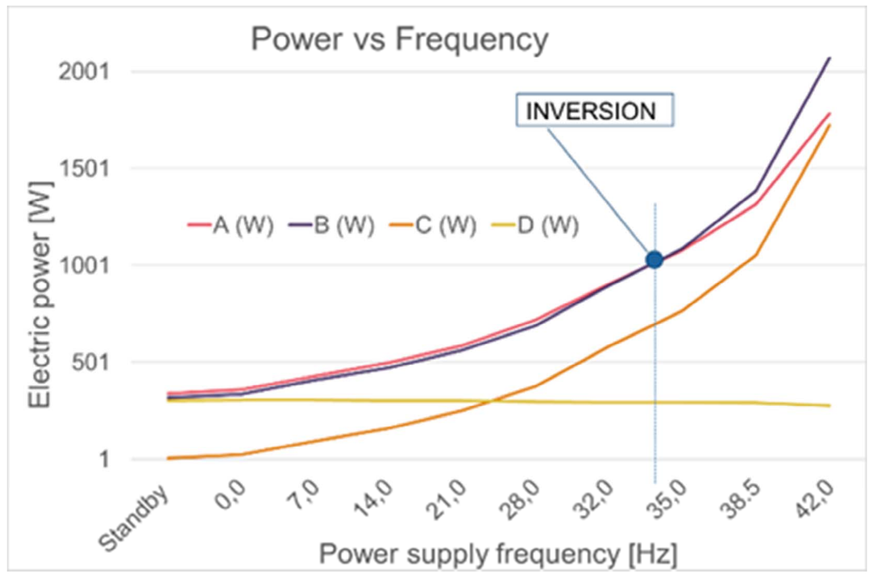
Three phases electric motor

Motor-generator coupling

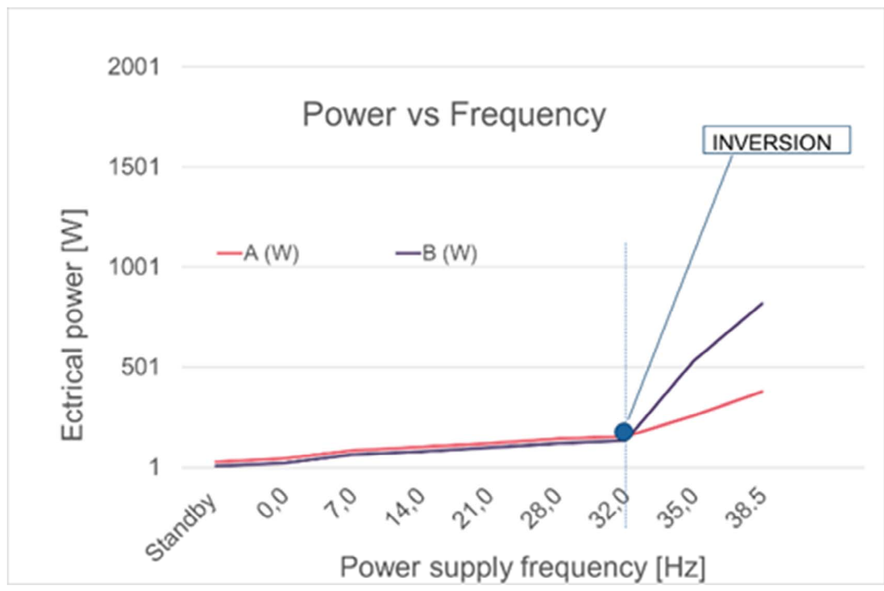
Experimental Results

In mode 1 setup, using a belt drive system, we spun an alternator at around 2500 rpm, driven by an electric motor. By converting the alternating current produced by the alternator into direct current and sending it to a hybrid inverter, we measured the additional power. Experiments show that the generation of additional electricity does not come from the electricity supplied to the electric motor. Furthermore, excess energy is only generated by the alternator when the machine is running in active load mode.

The analysis of the experimental data shows that the additional power produced by a permanent magnet alternator is practically equal to the nominal power of the generator itself and that the power absorbed by the electric motor (in the absence of further loads) is greater than the electrical power absorbed by the electrical grid, given that part of the energy would be supplied by the quantum vacuum according to Heim's extended theory.



Electric powers in mode 1



Electric powers in mode 2

Conclusion

In conclusion, the experimental results obtained in this study demonstrated that it is possible to generate additional energy using, under certain conditions, the electromagnetic and gravitomagnetic interactions between the rotor and stator of an alternator. The experimental data obtained have shown that the additional power produced by the alternator and generated thanks to the gravitomagnetic effect, through the mechanism described by Heim's theories, is proportional to the angular velocity of the alternator itself. In the future, it would be interesting to further explore this effect through experiments with motors and alternators of various powers and types, as well as explore possible practical applications of the gravitomagnetic effect. Furthermore, further research and development are needed to better understand the dynamics of the electric motor's influence on the whole system and to measure the Lense-Thirring effect [9,10,11] produced by the magnetic rotors of electric machines, under suitable conditions, which could be some orders of magnitude higher than that obtained using ordinary non-magnetic or superconducting matter [12]. However, the results obtained in this study represent an important step forward in understanding the gravitomagnetic effect and Heim's theories and provide a solid basis for further research in this field. In general, Heim's theory represents an interesting physical phenomenon that deserves further investigations to better understand its functioning and to evaluate whether there are possibilities of using it in a practical way.

References

1. de Matos C.J., Tajmar M., *Gravitomagnetic London moment and the graviton mass inside a superconductor*, 2005, Physica C 432 (2005) 167-172
2. Iadicicco A, *Local Gravitoelectromagnetic Effects Inside A Metallic Liquid*, International Journal of Advances in Science, Engineering and Technology (IJASEAT),2019, pp. 22-23, Volume-7, Issue 1
3. Tajmar M., de Matos C.J., *Gravitomagnetic field of a rotating superconductor and of a rotating superfluid*, March 2002, Physica C Superconductivity 385(4):551-554
4. Ciufolini I., Pavlis E., Chieppa F., Fernandes-Vieira E., Perez.Mercader J., *Test of General Relativity and Measurement of the Lense-Thirring Effect with Two Earth Satellites*, SCIENCE ,Mar 1998, Vol 279, Issue 5359, pp. 2100-2103
5. Forward R.L., *Guidelines to Antigravity*, American Journal of Physics 31, 166 (1963)
6. Droscher W., Hauser J., *Guidelines for a Space Propulsion Device Based on Heim's Quantum Theory*, Joint Propulsion Conference & Exhibit, Fort Lauderdale, Florida, 11-14 July, 2004, DOI:10.2514/6.2004-3700
7. Droscher W., Hauser J., *Future Space Propulsion Based on Heim's Quantum Theory*, 39th AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit, July 2003, Huntsville, Alabama, https://doi.org/10.2514/6.2003-4990
8. Eckstein D., *Epstein explains Einstein*, 2013, ISBN 978-3-8442-7060-0
9. Thirring, H. Über die Wirkung rotierender ferner Massen in der Einsteinschen Gravitationstheorie. Physikalische Zeitschrift 19, 33 (1918). (On the Effect of Rotating Distant Masses in Einstein's Theory of Gravitation)
10. Thirring, H. Berichtigung zu meiner Arbeit: "Über die Wirkung rotierender Massen in der Einsteinschen Gravitationstheorie". Physikalische Zeitschrift 22, 29 (1921). (Correction to my paper "On the Effect of Rotating Distant Masses in Einstein's Theory of Gravitation")
11. Lense, J. and Thirring, H. Über den Einfluss der Eigenrotation der Zentralkörper auf die Bewegung der Planeten und Monde nach der Einsteinschen Gravitationstheorie. Physikalische Zeitschrift 19 156-63 (1918) (On the Influence of the Proper Rotation of Central Bodies on the Motions of Planets and Moons According to Einstein's Theory of Gravitation)
12. Tajmar M., *Evaluation of enhanced frame-dragging in the vicinity of a rotating niobium superconductor, liquid helium and a helium superfluid*, Superconductor Science and Technology, Volume 24, Number 12