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Takaaki Musha

Advanced Science-Technology Research Organization, Yokohama, (JAPAN)
E-mail: takaaki.mushya@gmail.com

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***Corresponding author's Name & Add.**

Takaaki Musha
Advanced Science-Technology Research Organization, Yokohama, (JAPAN)
E-mail: takaaki.mushya@gmail.com

Electrogravitic originated mass of stars and the electric Sun hypothesis

Abstract

The hypothesis that the Sun may carry a negative electric charge was proposed by Prof.Bailey at first in 1960 for the explanation of the maximum energy found for a primary cosmic ray particle and other astronomical phenomena. According to the electrogravitic theory by B.V. Ivanov, it can be seen that the stars like the Sun has a possibility to have a mass generated by its electric charge. In this paper, the author tries to explain solar anomalies such as solar neutrino deficit.

Keywords

Electric Sun model; Electrogravity; Plasma universe.

INTRODUCTION

Most of the space within our galaxy is occupied by plasma containing electrons and ionized atoms. Every charged particle in the plasma has an electric potential energy (voltage) just as every pebble on a mountain has a mechanical potential energy with respect to sea level. The Sun is surrounded by a plasma cell that stretches far out - many times the radius of Pluto. The Sun is at a more electrical potential than is the space plasma surrounding it probably in the order of 10 billion volts. The hypothesis has been proposed that the Sun may be powered, not from within itself, but from outside, by the electric (Birkeland) currents that flow in our arm of our galaxy as they do in all galaxies. This possibility that the Sun may be externally powered by its galactic environment is called as the Electric Sun (ES) model.

In the Plasma Universe model, cosmic sized, low-density currents create the galaxies and the stars within those galaxies by the electromagnetic z-pinch effect. It is only a small extrapolation to ask whether these currents remain in place to power those stars. Galactic currents are of low current density, but, because the sizes of the stars are large, the total current (Amperage) is high. An electrically powered Sun's radiated power would be due to the energy delivered by that amperage.

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The hypothesis that the Sun may carry a negative electric charge given by $Q_S = 5 \times 10^{18}$ (C), was proposed by Prof. Bailey at first in 1960 for the explanation of the maximum energy found for a primary cosmic ray particle and other astronomical phenomena[1]. He considered that the four dimensional space-time universe was a hyper-surface in a five dimensional universe and there existed streams of electrically charged particle from hyper dimensional universe into four dimensional space-time, where the laws of conservation of energy momentum and electric charge held true. He also thought that these electrical streams depends on local metric of space-time.

Boyko V.Ivanov of Institute for Nuclear Research and Nuclear Energy in Burgaria obtained the formula for

describing the coupling between electromagnetism and gravitation from Weyl-Majumdar-Papapetrou solutions for the metric space-time[2-4].
Based on his electrogravitic theory, the author attempts to explain the riddles of the Sun such as neutrino deficit and other phenomena.

OUTLINE OF IVANOV'S THEORY ON ELECTROGRAVITICS

In general relativity, EM fields alter the metric of space-time and induce a gravitational force through their energy-moment tensor given by[2,3]

$$\mathbf{T_{\nu}^{\mu} = \frac{1}{4\pi}\left(F^{\mu\alpha}F_{\nu\alpha} - \frac{1}{4}\delta_{\nu}^{\mu}F^{\alpha\beta}F_{\alpha\beta}\right)}, \quad (1)$$

where $F_{\mu\nu} = \partial_{\mu}A_{\nu} - \partial_{\nu}A_{\mu}$ is the electromagnetic tensor and A_{μ} is the four potential. We have taken into account that $T_{\mu}^{\mu} = 0$. Assuming that the metric and the E-M fields do not depend on time. In this stationary case, let us simplify the problem by setting $A_{\mu} = (\bar{\phi},0,0,0)$, then there is just an electric field given by $E_{\mu} = F_{0\mu} = -\bar{\phi}_{\mu}$
Let us further assume that the space-time is static, $f \equiv g_{00} = F(\phi)$ has the unique form $f = 1 + B\phi + \phi^2$, which was found by Weyl already in 1917 in the axially-symmetric case, which solutions are known as Weyl fields.
Then the equation for the gravitational field induced by static electric field given By

$$\mathbf{g = c^2 f^{-1}\left(\frac{B'}{2}\sqrt{\frac{\kappa\varepsilon}{8\pi}}\bar{\phi}_i + \frac{\kappa\varepsilon}{8\pi}\bar{\phi}\bar{\phi}_i\right)}, \quad (2)$$

where $f \equiv g_{00}$, B' is a constant and $\kappa = 8\pi G/c^4$.
From which, he derived the formula of gravitational force F_g shown as

$$\mathbf{F_g = \sqrt{G\varepsilon}\frac{M}{d}\bar{\psi}_2 = \sqrt{G\varepsilon\mu}S\bar{\psi}_2}, \quad (3)$$

where M is the mass of the dielectric, μ is its mass density, ε is dielectric constant, d is the distance between the plates, ψ_2 is the potential of the second plate when $\psi_1 = 0$ and S is an area of the plate. This phenomena has been discovered by Thomas Townsend Brown (1905-1985) already in 1923 together with Prof. P.A. Biefeld effect (which is called Biefeld-Brown effect)[5].

ELECTROGRAVITIC ORIGINATED MASS OF THE SUN

If the electrogravitic equation given by Eq.(3) can be applied to massive stars, it is considered that the gravitational field can be generated by electric charges.
From the equation in the paper, "On the gravitational field induced by static electromagnetic source"[2] or the equation in the paper, " Strong gravitational force induced by static electromagnetic fields"[3], the electrogravitic field can be given for the spherical symmetry case as

$$\mathbf{g(r) = -\sqrt{4\pi\varepsilon_0 G}\frac{\bar{\psi}\cdot\mathbf{r_0}}{r^2}}, \quad (4)$$

where $\bar{\psi} = \dfrac{Q}{4\pi\varepsilon_0 r_0}$ (Q: charge of the sphere).

From the formula, $div\ g = 4\pi G\rho_m$, and the Gauss's theorem, $\int_S div\ g \cdot ds = \int_V 4\pi G\rho_m dv$, where ρ_m is the mass density inside the sphere, we have

$$\mathbf{-\frac{\sqrt{4\pi\varepsilon_0 G}}{4\pi\varepsilon_0 r_0^2}Q\int_S ds = 4\pi G M_0}, \quad (5)$$

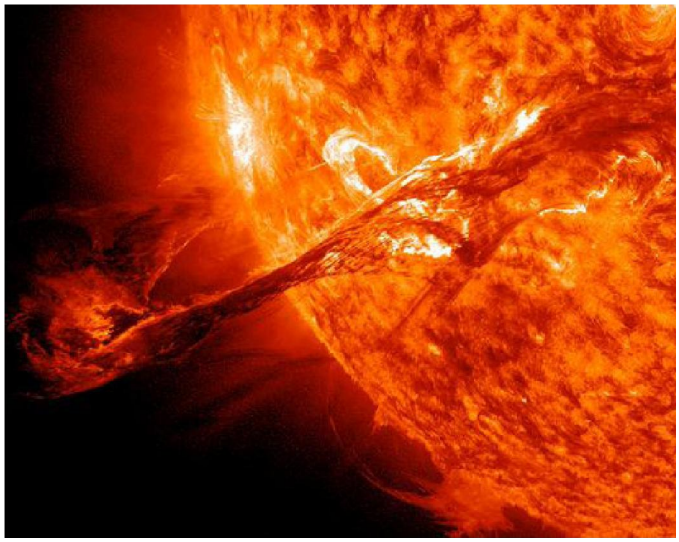

Figure 1 : Birkeland current observed on the Sun

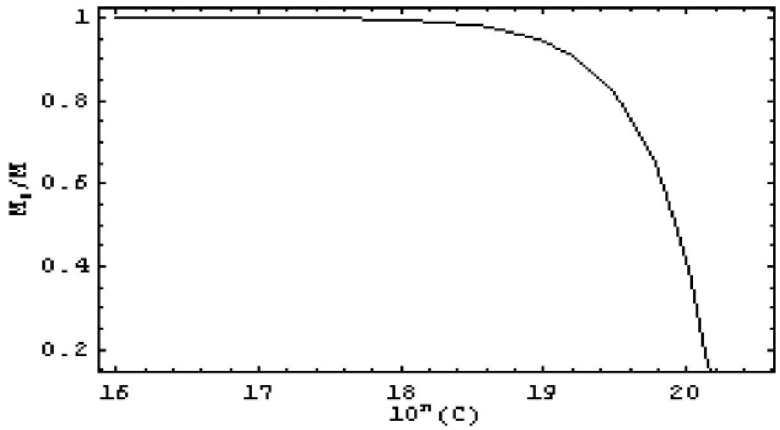

Figure 2 : Electric charge of the Sun and the ratio M_0 / M

where $M_e = \int_V \rho_m dv$.

Finally we obtain the equivalent mass generated by the electric charge becomes

$$\mathbf{M_e = -\frac{Q}{\sqrt{4\pi\varepsilon_0 G}}}. \quad (6)$$

This equation shows the gravitational effect of electric field around the spherical body.

If we let M_e be the electro induced mass of the Sun, the apparent mass of the Sun becomes

$$\mathbf{M = M_0 + M_e = M_0 - \frac{Q}{\sqrt{4\pi\varepsilon_0 G}}}, \quad (7)$$

where M is an apparent mass of the Sun and M_0 is a true mass of the Sun.

Then we have

$$\mathbf{M_0 / M = 1 + \frac{Q}{\sqrt{4\pi\varepsilon_0 G}}}, \quad (8)$$

Figure 2 shows the calculation result between the electric charge of the Sun and the ratio M_0 / M.

From this calculation result, it is considered that some of the gravitational field attributes to the electric charge of the Sun.

Bailey proposed a formula for a star like the Sun of the mass M_{S_S} (kg) which carries a net negative charge, $-Q_S$ (C), given by[1]

$$\mathbf{Q_S = \beta\sqrt{4\pi\varepsilon_0 G}M_S}, \quad (9)$$

where β is a pure number of the order of 0.03.

From this equation, he estimated that $Q_S = 5\times10^{18}(C)$. From Figure 2, this is negligible compared to the mass of the Sun, but when the constant β is almost equal to unity, $M_0 / M \approx 0.2$, it can be seen that most mass of the Sun attributes to electrogravitic originated.

GENERATED MASS DUE TO THE ELECTROGRAVITIC EFFECT AND THE SOLAR NEUTRINO PROBLEM

It is believed that the Sun is a natural nuclear fusion reactor, powered by a proton-proton chain reaction which converts four hydrogen nuclei (protons) into helium, neutrinos and energy. The excess energy is released as gamma rays and as kinetic energy of the particles, including the neutrinos, which travel from the Sun's core to Earth without any appreciable absorption by the Sun's outer layers.

As neutrino detectors became sensitive enough to measure the flow of neutrinos from the sun, it became clear that the number detected was lower than that predicted by models of the solar interior. In various experiments, the number of detected neutrinos was between one third and one half of the predicted number[6,7]. This came to be known as the solar neutrino problem.

Nowadays this is explained by the neutrino oscillation, but Stephen Goodfellow[8] pointed out the problem that the neutrino count drops when sunspots occur on the Sun's photosphere. He claimed that neutrinos have little or no charge and so cannot be significantly affected by the magnetic field of sunspots on the Sun's surface. If neutrinos originate from the Sun's core and travel outwards, then sunspots on the photospheric surface should have no effect on the neutrinos. These subatomic particles should pass to the observer unimpeded, yet the neutrino count is diminished during sunspot activity.

Thus he suggested that neutrinos originate near the Sun's photospheric surface. Within sunspots there is decreased temperature and luminosity. Consequently, there is less fusion and therefore a likelihood of a drop in neutrino production; hence a decrease of neutrinos during sunspot activity. From which, he claimed that

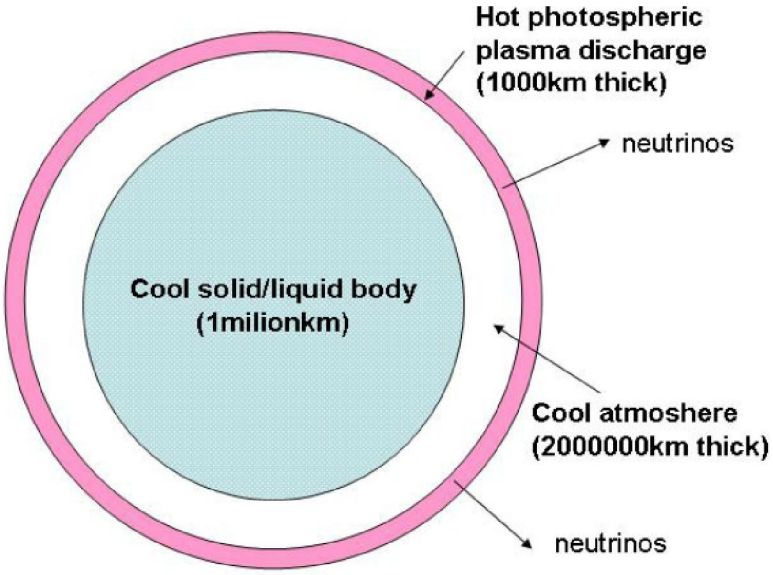

Figure 3 : Model of the electric sun

the Sun is a shell of sustained charged plasma encasing a no-space/absolute vacuum that induces gravity. Figure 3 shows one of the models of the Electric Sun, where solar neutrinos are created in the surface layer of the Sun by hot photosheric plasma discharges[9].
This model can explain the solar neutrino deficit without the theory of neutrino oscillation.
According to the electrogravitic theory, the charge of stars generates an extra gravitational field, and hence it is considered that the net mass of the Sun is smaller than estimated from the Newton's gravity theory.
This result may explain the neutrino deficit observed and this model doesn't contradict the ES model, which can explain why the sun's corona is so hot, which is the furthest layer from the sun's core.

CONCLUSION

If most of the mass of the Sun is electrogravitic origin, there is a possibility that the Sun dose not generate its energy by nuclear fusion of hydrogen nuclei into helium at the core, but it may be powered, not from within itself, but from outside, by the electric currents that flow in our arm of our galaxy as they do in all galaxies. This possibility that the Sun may be externally powered by its galactic environment is the most speculative idea in the ES hypothesis.

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