Eternal Sun

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Abstract

This paper seeks to explain three solar puzzles - namely - (1) Solar Neutrino Problem, (2) Coronal Temperature Problem, and (3) Ion and electron teperature discrepancy. It considers a hypertoroidal cosmological model, in which space time have the topology $S^3 \times S^1$ - which have also been explored by Segal and Guillemin. Interaction between the outgoing retarded fluxes, emanating from the sun, with the in coming advanced fluxe (returning to their origin) - provides the solution.

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1 Introduction

In an eternally existing, civilized cosmos, eternal existence of stars such as sun is a must [1]. However, this contradicts, currently accepted views on, "what makes the sun shine?". The traditional view is that, within the sun, nuclear fusion is occurring, in which hydrogen atoms are fusing and forming helium atoms, and liberating energy in the process. Such models, estimate the age of sun to be around 5 billion years, and likely to last another 5 billion years. Its very clear, that this model is out of place, in a universe which repeats in identical cycles, every few thousands years. If this eternally repeating cosmos is the true model of physical universe, as claimed by Brahma Kumaris World spiritual university, - then what is the mechanism which makes the sun eternal, and what is wrong, with the traditional scientific view on source of solar energy. These are the two issues with which this paper deals.

2 Paradoxes of the Sun

Firstly, I highlight, the three paradoxes of the sun - first one is called the solar neutrino problem, and second, the coronal temperature problem, and the third - discrepancy between the electron temperature and ion temperature.

2.1 Solar Neutrino Problem

Astrophycists, have calculated, that if source of solar energy is indeed nuclear fusion, then a type of elementary particle called neutrino should be liberated, in the process, and a particular quantity of these solar neutrinos should be detectable at earth [2]. Such experiments were indeed mounted in sixties, and have been going on since, almost three decades. It is a profound surprise to physicists, that number of solar neutrinos being detected are hardly one third of the calculated value. This anomaly between observation and theory has yielded varying reactions - ranging from speculative ideas, on something happening to solar neutrinos, on their way to earth, on one hand, while on the other hand the possibility considered has been, that perhaps, the solar models, governing equations, values of certain empirical constants, require modification.

2.2   Coronal Temperature Problem

The coronal temperature problem is still more intriguing. You see, while temperature of surface of sun as obtained from its surface brightness, using black-body radiation formula is hardly 6000 degrees centigrade, the temperature of its thin tenuous atmosphere - the so called "solar corona" is one and a half million degrees centigrade [3]! Solar corona extends into free space, upto a distance of more then three times, the radius of sun, and is seen during full solar eclipses, as a beautiful, fibrous halo surrounding sun. This value of temperature is obtained by noticing the presence of unique light (spectral lines) of iron atoms (ions to be more precise), in which upto thirteen electrons have been removed from the atoms. If the source of solar energy is inside the sun, and energy is flowing outwards from within, the natural expectation would be that outside should be cooler. The coronal temperature problem has another part-2 to its story. There exists a factor 2 discrepancy between temperature of ions (atoms with some electrons removed), and temperature of free electrons within corona.

2.3   Electron and Ion Temperature Discrepancy

While there is no doubt about value of ion temperature of one and half million centigrade, there exists, certain scope in improvement of calculation of temperature of free electrons within solar corona [4]. You see there are various types of equations which can be used for calculating the temperature of electrons within corona. If the energy is flowing from within the sun, outwards, one has to use one type of equation. On the other hand, if energy is not flowing from inside, but is in a sort of equilibrium, then one uses a different equation. The problem is that the first method, in which energy is flowing from within the sun, outwards, one obtains a value for electron temperature which is half of what is required. On the other hand, if the equation used is, one in which, such a energy flow is not there, then the value of electron temperature obtained as such, is exactly the required value. Only hindrance to using this equation is that, it does not mesh in with the conventional solar model, of energy source being within sun.

3 Proposal of hypertoroidal Cosmological Model - as solution to Solar Puzzles

Now that the two main solar problems, namely the solar neutrino problem, and solar coronal problem are understood by the reader, I would like to propose, an "eternal sun" model. Here the sun is embedded a spacetime whih is called as *Hypertorus*. The geometry of the spatial section is that of 3 sphere - called hypersphere. The time factor has the geometry of a circle [5, 6]. It is well known to physicists that space-time curvature can make trajectory of particles, deviate from a straight line. There exist models of universe, in which the universe is closed in such a manner, that one returns to one's original starting point, by continuing to move in a straight line, without turning back. One can conceive of an eternally repeating cosmos, in which space-time curvature is such that, if time period of repetition is N years, then light returns to its starting point after traveling N light years. The reader might be aware that a light year is distance traveled by light in one year. In such a space-time, all the radiation being emitted from sun will return back to sun, and the sun will thus be continuously replenished, by returning fluxes. The returning radiation will be confined to outer part of sun, namely the corona. Bulk of energy will thus be within corona, which will blanket the sun's surface from returning radiation. This may be the reason for, temperature of corona being 200 times higher then that of solar surface. In this model, the second equation for determining electron temperature, which yields the right value for electron temperature (!), will be applicable! Further, now one need not postulate hydrogen fusion, as source of sun's energy, and thus one does not require, detection of previously calculated high number of solar neutrinos!

4 Discussion

This "eternal sun" model, in which solar energy returns to its starting point, due to space-time curvature, resolves the three solar problems, while at the same time is compatible with Godly Knowledge, being expounded by Brahma Kumaris World Spiritual University. The guiding philosophy behind development of such models is to look for fundamental paradoxes prevalent in various areas of physics and other sciences, and churn on their possible resolution using principles of Godly Knowledge, and its implications. This churning

will have to be a combined effort between scientists and spiritualists, analogous to mythological tale of deities and Demons, joining hands to churn the ocean (of knowledge), using a giant snake (Shesh Naag - symbol of time) as churning rope, with Mount Sumeeru (Abu) as the churning axis, supported by, God's incarnation as a giant tortoise (symbol of withdrawal into essence) [7].

References

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