

# PAPER ON THEORITICAL ANALYSIS OF SOLAR ENVIRONMENT AND ITS INTERACTION WITH THE INNER PLANET RING

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## Abstract:

From the beginning of the universe, we have seen the heart of the solar system, the Sun to sustain the life in this galaxy. But we have seen the times where the Sun has shown some really strange observations and have really puzzled the scientists across the globe and had caused a stir in the scientific community. The main event that led to the study of the Solar Environment was the solar storm of 1859, which is also known as the Carrington Event. It was a powerful geomagnetic storm during the solar cycle 10 (1855-1867). It was a solar coronal mass ejection that hit the earth magnetosphere and induced the largest geomagnetic storm on September 1-2, 1859.

This is just a tip of the ice berg of the complete solar environment. Sun outer surface is generally influenced by the core of the sun. My paper is based on the theoretical predictions about this core and its interaction with the external environment.

## Thesis:

Basically our sun is composed of the elements Hydrogen (H) and Helium (He). By mass the sun's composition is 75 % hydrogen and 25 % helium. So, for the nuclear reaction that should occur inside the core of the sun happens with hydrogen and helium. In its core, the Sun fuses 620 metric tons of hydrogen and makes 606 metric tons of helium each second. The fusion of lighter elements in stars always results in production of energy and mass.

Now, during the nuclear fusion inside a star a lot of energy is dissipated in the form of heat and light. That light and heat sustains all life forms on earth. Also the sun's magnetic field drives and changes on it's surface and beyond. Now, due to the gamma ray burst from the sun convert the high-energy photons into low-energy photons before they reach the sun's surface and are finally emitted out into the space. If the point where the gamma rays are emitted, is intensified by Sun's magnetic field, then the photons that are emitted may be impacted. Primarily, the sun's magnetic field may not have an effect over the gamma rays but, the gamma ray burst may be intensified by the magnetic effect of the sun's core.

The Sun's magnetic field, is generated by electric currents inside the sun. These electric currents are influenced by the chemical reactions inside the star. The chemical reactions that take place generate energy and mass. The generated energy

stimulates the surrounding atoms whose vibrations generate the electric current in the core of the sun. Moreover the activities that take place at the surface of the sun such as surging and ebbing are attributed to the electric current at the core. If at the surging point, the gamma ray burst has an added advantage of converting high energy photon to a low energy photon, then only at some parts the photons are emitted in the low-energy band gap. So, in reality only a part of the photons that are emitted are only of low energy. The rest of the photons that are emitted are of high energy band gap.

This difference is prominent in the surface of the sun and its nearby areas such as sun's corona. Now the key point that is to be noticed by astronomers and fellow scientists is that the low energy photons have higher wavelength and hence they are more visible than the other photons. This proves that the sun's light is caused by the low energy band gap photons. Then, the role of high energy photons is only to radiate heat.

Now, we shall look at the inner ring planet. It consists of four planets: Mercury, Venus Earth and Mars.

Now among the four planets, Mercury is closest to the sun, in terms of the distance from the sun. It is more susceptible to the solar flares that happen. Mercury doesn't contain any moons but due to its presence near to the sun, it's much more hotter and more vulnerable to the solar bursts.

Solar flares are due to excessive surging of the surface of the sun. This happens when large amount of energy is generated inside the core of the sun. This energy powers the Solar bursts of smaller ranges. These ranges are enough to cause a mild geomagnetic storms of smaller ranges. Now when the same solar bursts take place at higher ranges, they can cause a major disruption in any planet's geomagnetic field. If this happens then for any planet, then its physical features can be disrupted and if it persists, then some of its physical features might be completely changed which may in turn alter the chemical composition of the planet. This happens due to change at the atomic, molecular level or even at nuclear level.

