

This article was inspired by the article "Is the Sun a Black Hole?" by Nassim Hamein. The article describes a collection of various anomalies related to the physics of the Sun, which I have also considered from the TGD point of view. The most important anomalies are the gamma ray anomalies and the missing nuclear matter of about 1500 Earth masses. There is also evidence that the solar surface contains a solid layer: something totally implausible in the standard atomic physics. The idea that the Sun could contain a blackhole led in the TGD framework to a refinement of the earlier model for blackhole-like objects (BHs) as maximally dense flux tube spaghettis predicting also their mass spectrum in terms of Mersenne primes and their Gaussian counterparts. The mass of the Sun and the mass which is 4/3 times the mass of the Earth belong to this spectrum.

It however turned out that the TGD based model for the missing nuclear matter could assign the gamma ray anomalies to the magnetic body of the Sun consisting of monopole flux tubes. A magnetic bubble as a layer would cover the surface of the Sun and consist of closed monopole flux tube loops. One option is the analog of a dipole field containing flux tube portions along the magnetic axis from South to North and returning along the solar surface from North to South. Also the solar nucleus could contain M_{89} nucleons. The flux tubes could carry M_{89} nucleons with a mass, which is 512 times the mass of the ordinary nucleon. They could be characterized by the gravitational Planck constant of the Sun with gravitational Compton length equal to $R_E/2$ for all particles (R_E refers to the Earth radius). Intriguingly, the Sunspot size is of the order of $R_E/2$. This flux tube structure, predicted to have a mass of order $1500M_E$, would correspond to one dark M_{89} nucleon per the Compton volume of the ordinary M_{89} nucleon so that the analog of supra phase with very large overlap between wave functions would be in question.

An additional input is provided by the model for dark nucleons applied in the models of "cold fusion" and pre-stellar evolution. The heating by the dark fusion would ignite the ordinary nuclear reactions giving rise to the stellar core. The convection zone could consist of dark nuclei and the core to (possibly dark, or even gravitational dark) ordinary nuclei so that ordinary nuclear fusion is a part of the model. The role of the M_{89} nucleons at the monopole flux tubes would be the transfer of nuclei and energy to the flux tubes at the surface where radiation and solar wind would take care of the rest. In the p-adic cooling, the splitting of the flux tubes to ordinary nucleons of the solar wind by reconnection would also liberate the radiation from the Sun.

The magnetic body carrying long strings of M_{89} nucleons could be seen as a 2-D surface variant of the TGD counterpart of blackhole, which is dark. This model conforms with the earlier model of the sunspot activity related to the reversal of the solar magnetic field.

A possible explanation for the gamma ray anomalies would be in terms of M_{89} and M_{79} mesons generated in the TGD counterpart for the formation of quark gluon plasma in a process analogous to high energy nuclear collision creating very high nuclear densities. The decay of M_{89} nucleons to ordinary nucleons of solar wind in p-adic cooling would generate anomalous gamma rays. $M_{G,93}$ mesons could be also generated in the touching of two M_{89} flux tubes, whose distance would be larger than 2 Compton lengths of M_{89} (M_{107}) nucleons.

The generation of M_{89} nucleons is necessary. The monopole flux tube network connecting stars to a network analogous to a blood circulation feeds the M_{89} nuclei burned to ordinary nuclei inside the Sun. The regeneration could be also p-adic heating as the reversal of the p-adic cooling. In zero energy ontology (ZEO) it could be associated with a "big" state function reduction (BSFR) in solar scale in which the arrow of time changes and the process can be seen as a decay process with a reversed arrow of time: the system would effectively

extract energy from the surroundings. Also in TGD inspired quantum biology this kind of process takes place and makes homeostasis possible. If the p-adic temperature of the Sun increases inside the core in a stepwise manner by scalings by 2 to M_{89} temperature, ordinary nuclear fusion might provide the needed metabolic energy.

The model leads also to a proposal for the generation of the inner planets and Mars via the explosion of the outer layer of the Sun consisting of M_{89} nuclei (dark M_{107} nuclei) to M_{107} nuclei. For the M_{89} option the conservation of baryon number dictates the mass of the structure formed in this way to be at most of the order of $3M_E$. The explosion would give rise to the inner planets and cores of the outer planets which would have got their gas envelopes by gravitational condensation. This model generalizes to a model for supernovas and generation of solar wind. The anomalies related to solar convection and solar neutrinos suggest that the standard model for solar interior must be replaced with a generalization of the nuclear shell model proposed already earlier.