

Topological Geometrostatics (TGD) leads to new physics both classically and at quantum level. This new physics could provide a solution to the energy problem. Artificial photosynthesis, nuclear fission, hot fusion and also "cold fusion" have received a considerable attention as solutions of this problem. TGD has led to a model of "cold fusion" (CF), which was later generalized to a model for nuclear physics applicable also to hot fusion and to explain a 10 year old anomaly in the nuclear physics of Sun.

TGD leads also to a model of quantum biology relying on new quantum physics. This model could provide a theoretical basis for the understanding of photosynthesis. This article provides first an introduction to CF, and then a brief summary about TGD as a unification of fundamental interactions and its applications to quantum biology and to theory of consciousness as generalization of quantum measurement theory. Finally TGD based model of CF and how it could help in the development of energy technology is discussed.

What is remarkable that both CF and ordinary nuclear reactions would proceed by essentially the same mechanism as bio-catalysis made possible by quantum criticality and phase transitions changing length scale dependent cosmological constant predicted by TGD. By fractality of TGD Universe this mechanism could actually apply in all scales from astrophysics to hadron physics and even in phase transition that was expected to correspond to color de-confinement.