

The realization that saltation as a conduction over the myelinated portions of the axon is still poorly understood phenomenon inspired a careful reanalysis of the earlier TGD inspired visions of nerve pulse conduction, EEG and of brain based on the new view about space-time, the notion of the magnetic body carrying  $h_{eff} > h$  phases behaving like dark matter, and the zero energy ontology (ZEO) based quantum measurement theory extending to a theory of consciousness.

The TGD view about nerve pulse replaces nerve pulse as a wave assignable to a generalized Josephson junction formed by lipid layers of the cell membrane for which Josephson frequency  $f_c$  is replaced by the sum  $f_c + \Delta E_c$ , where  $\Delta E_c$  is the difference between cyclotron frequencies for transversal flux tubes at the different sides of the axon. What propagates is the deviation of membrane potential below the critical value for the generation of action potential. There would be no action potential in the myelinated portions of the axon and it would be generated only in the non-myelinated portions of length about  $1 \mu\text{m}$  and gives rise to chemical effects and also communicate a signal to the magnetic body if the notion of generalized Josephson junction is accepted.

An interesting challenge for the model is the discovery that the density of the voltage gated ionic channels in the dendrites of neurons is considerably lower for humans than for mammals. The general model suggests that the spatiotemporal patterns of Josephson radiation emitted by segments between nearby ionic channels or pumps define analogs of sentences of language having nerve pulse as a period analogous to the stop codon for DNA, then these sentences would be longer for humans, which could relate to the emergence of the human language capacity.