

## TGD and EEG

The TGD based general view about EEG developed in this book relies on the following general picture.

1. Magnetic body is the key actor in TGD inspired model of EEG and nerve pulse. Magnetic body acts as intentional agent using biological body as motor instrument and sensory receptor. There would be entire hierarchy of magnetic bodies associated with various body parts and characterized by the p-adic length scale and the level of dark matter hierarchy labeled by the value of Planck constant. The hierarchy of counterparts of EEGs associated with photons,  $Z^0$  and  $W$  bosons, and gluons at various frequency scales involving dark bosons with energies above thermal threshold by the large value of  $\hbar$  would make possible communication and control. In particular, cyclotron radiation from Bose-Einstein condensates at magnetic body and Josephson radiation from Josephson junctions associated with cell membrane and other bio-electrets would be involved and cyclotron and Josephson frequencies would correspond to EEG frequencies.
2. DNA as topological quantum computer vision suggests a rather detailed view about how genome and cell membrane interact. Nucleotides and lipids would be connected by magnetic flux tubes carrying dark matter with varying values of Planck constant and define braiding affected by the 2-D flow of the lipids in liquid crystal state and giving rise to a topological quantum computation with program modules defined by liquid flow patterns resulting via self organization process in presence of metabolic energy feed.
3. Sensory qualia could be associated with the generalized di-electric breakdowns between sensory organ and its magnetic body. The cyclotron phase transitions of Bose-Einstein condensates of biologically important ions generated by the dark EEG photons at the magnetic body could generate the analogs of somatosensory qualia identifiable as our cognitive and emotional qualia. Long ranged charge entanglement made possible by  $W$  MEs (topological light rays) could be essential element of motor control and generate exotic ionization of nuclei (new nuclear physics predicted by TGD) in turn inducing classical electric fields at space-time sheets carrying ordinary matter. These fields generate various responses such as ionic waves and nerve pulses yielding the desired physiological responses. The recent view about cell membrane as almost vacuum extremal of Kähler action explains large parity breaking effects in living matter and also the peak frequencies of photoreceptors in retina. Also a model for the cell membrane as a kind of sensory homunculus with lipids identified as pixels of a sensory map representing basic qualia follows naturally. Furthermore, EEG photons and biophotons can be identified as decay products of same dark photons.

The plan of the book is roughly following. The chapter describing the magnetic sensory canvas hypothesis is followed by a model for nerve pulse and by three chapters devoted to EEG. A speculative chapter discussing the possible role of exotic neutrinos in hearing and cognition concludes the book.