

p-Adic numbers as correlates of cognition and intention

The identification of p-adic numbers as correlates of cognition and intention

1. is suggested by
 - (a) ultrametricity characterizing p-adic topology associated with spin glass energy landscape which is fractal having potential wells inside potential wells proposed to characterize complex hierarchical systems like brain and be realized in TGD as 4-D spin glass degeneracy accompanying the vacuum degeneracy of Kähler action.
 - (b) the failure of strict determinism of p-adic differential equations due to the existence of pseudo constants having vanishing derivative but depending on finite number of binary digits only and possibly relating to the non-determinism of intention, imagination and cognition.
 - (c) the fact that rationals are common to reals and various p-adic number fields.
2. means that p-adic physics might define physical correlates of cognition and intention meaning that
 - (a) p-adic space-time sheets define "thought bubbles", the mind stuff of Descartes
 - (b) transformation of intention to action means quantum jump in which quantum superposition of p-adic space-time sheets transforms to that for real space-time sheets formation of cognitive representations thoughts means transformation of real space-time sheets to p-adic ones in quantum jump. This suggests that the larger the number of rational points of 3-surface, the higher the probability for the formation of thought bubble or realization of intention.
3. assumes that life resides in the intersection of reality and various p-adicities. This realizes the idea that rationals common to reals and various p-adic number fields represent the intersection of matter and mind.
4. relies on the notion of p-adic manifold for which chart maps from p-adic space-time sheet to real one and vice versa define cognitive representation and its inverse representing realization of intention realized in terms of canonical identification or some of its variants which are compromises between the identification along common rationals and continuity.
5. involves also other notions such as negentropic entanglement and Negentropy Maximization Principle (NMP) evolutionary hierarchy represented in terms of algebraic complexity of 3-surfaces.