

This chapter written together with Reza Rastmanesh was inspired by the book "Lifespan" by Sinclair and LaPlante. The books proposed that aging is basically caused by the approach to epigenetic chaos. The book also proposesthat bio-information is not only associated with DNA and genetic code but the conformational degrees of DNA and these are crucial in epigenesis. This vision serves as the starting point of TGD (Topological Geometrodynamics) inspired view.

Negentropy Maximization principle replacing in adelic physics second law but implying it for ordinary matter is the first key notion. Magnetic body (MB) carrying dark matter as $h_{\text{eff}} = nh_0$ phases of ordinary matter implying quantum coherence in the scale characterized by h_{eff} represents the second key notion. MB is the controller of the dynamics and its quantum coherence induces the coherence of ordinary biomatter as forced coherence rather than quantum coherence.

Zero energy ontology (ZEO) predicting the occurrence of time reversal in "big" (ordinary) state function reductions is the third key notion. Time reversal forces generalization of thermodynamics and dissipation of a subsystem with a reversed arrow of time looks like self-organization from the point of view of the system. Also self-organized quantum criticality difficult to understand in ordinary thermodynamics becomes possible.

The basic idea is that at birth the MBs of information molecules are at very low temperature and gradually approach the physiological temperature, which is near to Hagedorn temperature defining the maximal temperature of MB. This thermalization leads to epigenetic chaos implying that the flux tubes carrying dark DNA and therefore also DNA become loopy. Also the control of methylation and other modifications and their reversals crucial for epigenesis is lost. In particular, demethylation fails and leads to hyper-methylation of the promoter regions of genes. This leads to the failure of the control of genes coding for housekeeping proteins and eventually the system suffers a crash down.