

Book plan for Bentham

1. **Title:** Life and Consciousness: TGD based vision.
2. **Editor info:** I have done and will do all the editing involved.
3. **Background and purpose:**

Unified theories of fundamental interactions became in fashion for about four decades ago. Topological Geometrodynamics (TGD) emerged as a modification of general relativity in order to overcome the mathematical difficulties involved with the definition of energy and other conserved quantities in general relativity. TGD could be also seen as a generalization of hadronic string model, now it could be seen as generalization of super string models, which are now in very serious difficulties due to the landscape problem spoiling the ability of the theory to make testable predictions. The basic prediction is replacement of general relativity based view about space-time with a microscopic notion giving GRT space-time as an idealization. This has predictable implications for physics in all length scales, not only in ultrashort scales as in the case of string models.

Especially important are the implications for the understanding of living matter. The many-sheeted space-time makes itself visible through various kinds of anomalies and biosystems are a treasure trove of this kind of anomalies. The sheets of many-sheeted space-time corresponds rather concretely to the physical systems as we see them. Second new element is the notion of field body: physical systems have well-defined field identity - field body/magnetic body. Magnetic body plays central role in TGD inspired model of living matter receiving sensory input from the biological body and using it as a motor instrument.

TGD predicts that the effective value of Planck constant is quantized in integer multiples $h_{eff} = n \times h$ of ordinary Planck constant and for large values of h_{eff} these macroscopically quantum coherent phases identified as dark matter and could make living matter living. For instance, high temperature superconductivity is predicted.

TGD forces to generalize the ordinary quantum measurement theory suffering from internal inconsistencies to a theory of consciousness: observer as an outsider not effected by physics becomes part of the physical world, conscious entity - self. Zero energy ontology replaces the usual positive energy ontology and implies far reaching generalization of measurement theory allowing to understand the relationship between experienced time and the geometric time of physicist, how the arrow of time is generated, and why contents of conscious experience are localized to short time interval. Also a new view about memory emerges.

TGD strongly suggests also the extension of physics so that p-adic number fields and physics associated with them would serve as a physical correlate for cognition. Number theoretic negentropy and the notion of negentropic entanglement predicting that Universe is an evolving system increasing its negentropic resources analogous to universal library. This picture differs dramatically from the pessimistic view provided by Second Law although TGD view is consistent with it.

4. **Abstract/proposal summary:**

This book tries to give an overall view about TGD inspired vision about quantum biology and consciousness. The topics of this book are following.

- (a) In the first part of the book I will provide an overall view about basic visions behind quantum TGD, a summary about how Quantum Mind could be realized in TGD Universe, and also a comparison of TGD inspired theory of consciousness with some other theories of consciousness.
- (b) The second part of the book is devoted to a more detailed description of TGD inspired theory of consciousness. TGD view about time and quantum model of memory are discussed, general theory of qualia is considered, and a vision about how p-adic physics could provide physical correlates of cognition and intention is represented.

- (c) The third part of the book is devoted to quantum biology in TGD Universe. The first chapter is devoted to a more detailed description of the notions of quantum mind and magnetic body. In second chapter quantum and neuroscience are considered. For instance, TGD inspired quantum models for cell membrane, sensory receptor, EEG, and nerve pulse are included. There is a chapter about recent experiments of the group of Michael Persinger involving bio-photons and magnetic fields and unexpected long range correlations between distant systems induced by rotating magnetic fields. Last chapter is about the hypothesis that bio-photons result in the transformation of dark photons to ordinary photons.
5. **Target Audience:** Theoretical physicists and physicists, biologists, neuroscientist, students of theoretical physics, biology and neuroscience.
 6. **Benefits to audience:** Possibility to become aware of new highly developed ideas possibly providing theoretical and conceptual tools for understanding the deep problems involved with understanding of life and consciousness by a generalization of the existing conceptual framework of quantum theory.
 7. **Competition:** Various (also popular) books related to other quantum biology and quantum consciousness.
 8. **Specification:** Theoretical physics, unified theories, particle physics, (quantum) biology, neuroscience and quantum theories of consciousness.
 9. **Toc:** see the attachment toctgdconscbio.pdf or <http://www.tgdtheory.fi/toctgdconscbio.pdf>.
 10. **Submission:** 30.9. 2014.
 11. **CV and publication list:** See attachment curri.pdf or link <http://www.tgdtheory.fi/curri.html> or <http://www.tgdtheory.fi/curri.pdf>
 12. **Reviewers:**
I cannot suggest reviewers since I am outsider in scientific community and have no contacts to persons able to say something interesting about TGD. People who could could would be top theoreticians such as Penrose. Also string theorists have the mathematical and conceptual background making it possible to grasp the physical ideas. People involved with quantum consciousness.
 13. **Further info:**
 - (a) Possibly relevant URLs.
Homepage: <http://www.tgdtheory.fi>.
Blog: <http://matpitka.blogspot.fi>.
 - (b) The book is practically printable and has in its recent form more than 700 pages. Whether the format satisfied the demands on Bentham should be checked.