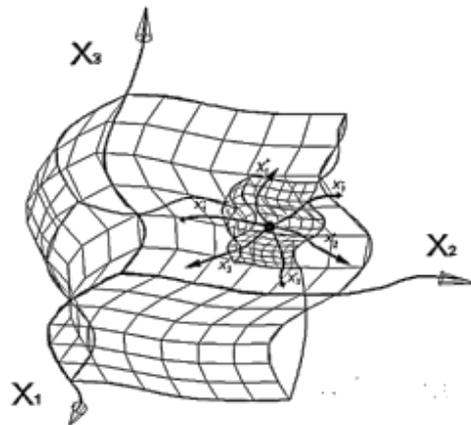


Fully geometrized physics from the standpoint of the Algebra of Signatures

(The stochastic metaphysics)



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Fully geometrized physics from the standpoint of the Algebra of Signatures
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In this book, the following metric-dynamic and stochastic positions are proposed:

- principles of construction of fully geometrized physics (more precisely *stochastic metraphysics*), based on the axiomatics of the Algebra of Signatures;
- extended Einstein vacuum equations and their hierarchical solutions;
- fundamentals of quantum geometry and derivation of the Schrödinger equation;
- expressions relating the Planck constant to the main characteristics of a stationary random process.
- fundamentals of vacuum dynamics and prospects for the development of vacuum ("zero") technologies.
- metric-dynamic models of almost all particles included in the Standard Model: "electron" and "positron", "quarks" and "antiquark" of all colors and generations, "proton" and "antiproton", "neutron" and "neutrino" of different varieties;
- metric-dynamic models of all known types of force interactions: "electromagnetic", "weak", "nuclear" and "gravitational".

The purpose for outlining the basics of *stochastic metraphysics* is the completion of the program of the Clifford - Einstein - Wheeler aimed at the complete geometrization of our beliefs about of the reality around us.

The book is intended for a wide range of readers interested in the problems of the structure of the Universe universe. It may be of interest to specialists in the field of natural sciences, physicists, mathematicians and philosophers.

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Brief summary

In this work entitled "Fully geometrized physics from the standpoint of the Algebra of Signatures" (stochastic metaphysics), the following are proposed:

- *The principles of the full geometrized of physics and the basics of the Algebra of Signatures;*
- *Extended Einstein vacuum equations and their hierarchical solutions;*
- *Fundamentals of vacuum dynamics and prospects of development of "zero" (vacuum) technologies.*
- *Metric-dynamic models of all particles in the Standard Model: «electron» and «positron», «quarks» and «antiquarks» of all colors and generations, «protons» and «antiproton», «neutron» and «neutrino» of different varieties;*
- *Fundamentals of quantum geometry and derivation of the Schrödinger equation;*
- *Metric-dynamic models of all known types of force interactions: "electromagnetic", "weak", "nuclear" and "gravitational". Nature of gravity.*
- *Comparison of the Algebra of Signatures (Alsigna) with the theory of superstrings.*

The fully geometrized physics (stochastic metaphysics) proposed in this book allows us to identify ways to solve the following problems of modern physics:

- explains the possibility of existence of the World in the absence of asymmetry between matter and antimatter. That is, in this work, the number of «particles» completely coincides with the number of «antiparticles», but the world does not annihilate, because «particles» and «antiparticles» are in complex-bound states.

- metric-dynamic (i.e. fully geometrized) models of all elementary «particles» included in the Standard Model, with the exception of Higgs boson, are presented. At this stage of research it is difficult, in the framework of the Algebra of Signatures (Alsigna), to design a metric-dynamic model of the Higgs boson, but it is already clear that an explanation of the inert properties of the local vacuum formations does not require the introduction of any additional particles or fields;

- second, third and other generations of leptons and quarks are explained as excited states of the first generation of leptons and quarks;

- a unified, fully geometrized, hierarchical model of the Universe, which includes both macro-objects (the universe, metagalaxies, galaxies, stars and planets) and micro-objects (biological cells, elementary "particle", proto-quarks, etc.), is obtained. The relationship between the various members of this hierarchy is shown;

- the metric-dynamic nature of gravity is explained, and the reason for the principle difference between gravity and other types of force interactions is shown;

- the fully geometrized models of all known force interactions are given: electromagnetic, weak, strong and gravitational;

- a hypothesis on the metric-dynamic cause of the expansion of the universe is proposed;
- a derivation of the Schrödinger equation is proposed. The geometric-statistical meaning of the Planck constant is revealed. The foundations of quantum geometry and statistical topology are laid;
- possibilities are discussed: breaking the "vacuum", freezing the "vacuum", evaporation of the "vacuum", obtaining energy from the "vacuum" and realization of many other vacuum effects;

- the preconditions for the development of the vacuum (zero) technologies, such as the formation of macroscopic wormhole to move in space, the endless seal channels, the repulsion from the "vacuum" energy from the "vacuum" and many other;



- efforts are made aimed at the full unification of the world constants, and, most importantly, at the complete eradication of the heuristic concept of "mass", as well as all derived concepts from "mass": from the concepts: "force", "energy", "impulse", "temperature", etc. are derived metric-dynamic analogues of these concepts. For example, the concept of "mass" is replaced by a dimensionless concept of "inertia"; the concept of "force" - by "actual acceleration"; "energy" and "temperature" are replaced by "intensity", etc. In such cases, none of the dimensions of the newly introduced physical quantities contain the dimension of "kilogram". Without solving this problem, we will not be able to create a fully geometrized physics, because the heuristic concept of "mass" and its unit "kilogram" in principle can not characterize the metric-dynamic properties of space. The foundations of "Vacuum Biophysics", "Vacuum Ethic" and "Vacuum Liability" are laid.

- the analogy between the Algebra of Signatures and the theory of superstrings is revealed.

These results were achieved thanks to the introduction of only two modifications into the General theory of relativity of Albert Einstein:

1. Instead of considering one 4-dimensional curved space, for example, with a signature (+---), we consider a set (or superposition) of sixteen 4-spaces with all possible signatures:

$$\begin{array}{cccc}
 (++++) & (+++-) & (-++-) & (+-+-) \\
 (---+) & (-+++) & (--++) & (-+--+) \\
 (+--+) & (++)- & (+---) & (+-++) \\
 (--+-) & (+-+-) & (-+--) & (----)
 \end{array}$$

2. Not one lambda-member is added to Einstein's vacuum equation, but an infinite number (∞) of lambda-members (Λ_n -terms), or a finite number (N) of lambda-members (Λ_n -terms):

$$R_{ik} - \frac{1}{2}Rg_{ik} + \Lambda_1g_{ik} + \Lambda_2g_{ik} + \Lambda_3g_{ik} + \dots + \Lambda_\infty g_{ik} = R_{ik} - \frac{1}{2}Rg_{ik} + g_{ik} \sum_{n=1}^{\infty} \Lambda_n = 0,$$

$$\text{or} \quad R_{ik} - \frac{1}{2}Rg_{ik} + g_{ik} \sum_{n=1}^N \Lambda_n = 0,$$

provided that the series of Λ_n -terms converges to zero

$$\sum_{n=1}^{\infty} \Lambda_n = 0 \quad \text{or} \quad \sum_{n=1}^N \Lambda_n = 0.$$

However, each item of this work is just the beginning, indicating a separate direction for further extensive research in this direction.

Declaration of the above achievements requires evidence. For this just go back to these lines after reading this work.

The religious and philosophical foundations of the aspects of the Algebra of signatures and stochastic metaphysics presented here are given in [17 through 22] and on the website www.alsigna.ru or on the website www.alsignat.narod.ru.

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