



## 3<sup>rd</sup> International Conference on Physics

### SYSTEMIC LOGIC IN THEORETICAL ASTROPHYSICS

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New method, systemic intuition [1], has enabled us to discover the following: (1) there are two fundamental particles – virtual electron (electrino) and virtual positron (positrino) - with no physical properties; their interaction gives birth to virtual positronium characterized by energy; positroniums exchange photons and acquire states, called compositiums, with complex energy;(2) ether, the primary physical medium described by correlation function, consists of compositiums; (3) ether generates mesons and neutrons; cosmic rays and microwave background are the proper radiations of ether; experimental data on cosmic rays enabled us to evaluate characteristics of ether and dimensions of some particles; mean radius of real electron proved to be about 0.01 fm; (4) in respect to ether excitation, neutron is linear system with continuously distributed parameters consistent spatially with ether; because of its time-space contradiction it transforms into H-atom; (5) H-atom is linear system with lumped parameters consistent in time with ether; H-atom consists of three quarks implementing collective interaction of virtual particles inside the atom and its photon exchange with ether; quarks are described by real symmetric matrices; agents of those processes correspond to gluons; (6) essence of nuclear interaction is conservation of energy by alternate transformation of electric energy to magnetic one and vice versa, atom of deuterium (D-atom) being its fundamental case; (7) H-atom and neutron can roughly be modeled by electric RC- and LR-circuits respectively; for exact representation it is necessary to take into account minor magnetic properties of H-atom and electric properties of neutron; D-atom is modeled by electric LCR-circuit, He-atom by T-shape low-pass filter; all above electric parameters are evaluated; (8) the pulse response of H-atom model follows closely correlation function of ether in high-energy region; the cut-off energy region of ether spectrum,  $10^8.5$  eV, is formed by atoms of helium and other elements; (9) nuclear structure evolves by shells, D-atom being its basic element; there are seven shells: He-shell (2-shell), octahedral shell (8-shell), icosahedral shell (18-shell), double-icosahedral shell (36-shell) and three inverse shells of 18, 8 and 2 D-atoms; additional neutrons perform inter-shell interaction; electron shells are integral components of nuclear structure; (10) every nuclear shell can be modeled by electric LCR-network, so that the whole atom can be represented by matrix of impedances; atom with atomic number  $m$  consists of  $m$  D-atoms, is represented by network with  $m$  degrees of freedom and, when excited, emits  $m$ -neutrinos; (11) stellar medium simulates conditions of ether, so that the atoms produced in it become different models of ether, achieving their perfection in the U-atom; its structure being actually the realization and exposition of the implicit structure of H-atom.1. Igor S. Makarov. A Theory of Ether, Particles and Atoms. Second Edition. Open University Press. Manchester, UK, 2010. Order: ISBN-13: 9781441478412. Online: <http://kvisit.com/S2uuZAQ>

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### Biography

Igor Stepanovich Makarov (b. August 18, 1935. Moscow USSR). I graduated with honor from the Moscow Institute of Communications and Broadcasting (1958). Then followed the Post-graduate Course of the same institute, with a dissertation in magnetic recording and the degree of Candidate of Science in Communications Engineering (1965). In 1964-1984, I worked as Senior Engineer and Senior Researcher at the Moscow Institute of Radio. Late in the 60s, I started my own independent research in Systems Theory and Theoretical Physics. During 1984-1992 I made several short reports on the existence of ether. In 1992 I immigrated in Israel. Looking for the proper conditions for my research, I have since traveled much across Europe, living for two years in Canada and gradually making progress with the research. During the period of 1996-2005, I published four articles in the Indian Journal of Theoretical Physics (Calcutta) on the theory of ether and its particles. In 2005-2006 in Israel, I prepared two drafts on the nuclear structure of atoms. The whole research, titled "A Theory of Ether, Particles and Atoms" (subtitled "The Reform of Modern Physics") was published first privately in England (July 2007) and then, after numerous corrections, professionally, in Israel and USA.

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