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Physics of “anomalous” properties of aqueous solutions

V.G. Shironosov

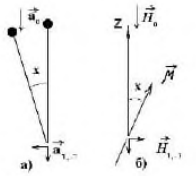
Research Center "IKAR",
426068, Izhevsk, st. Architect P.P. Bersha, 29.
ikar@udm.ru

A simple explanation of numerous "anomalous" properties of water in living and nonliving systems based on the principle of least action, classical nonlinear mechanics and electrodynamics is proposed [1]. Such water, as a rule, is in a nonequilibrium thermodynamic state with three-dimensional dissipative structures [2] based on Spin Isomers [3].

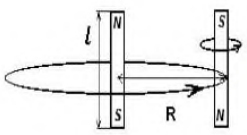
It took centuries (from the 17th to the 21st centuries, Pic. 1-4) before it became clear [1-7] that the linearization of the equations of motion in describing the properties of water is fundamentally wrong, and only the Coulomb, gravitational ~ 1/r and centrifugal terms are taken into account. ~ 1/r2, neglecting ~ 1/r3 (dipole - dipole type) is clearly insufficient.

As a result, scientists, not having solved ordinary differential equations, even for one or two particles taking into account their spins, proceeded to describe the nonlinear world around us based on phenomenological equations.

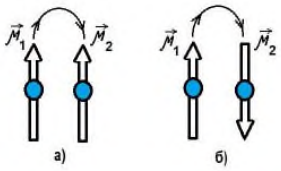
The physics of the processes of "anomalous" properties of water (homeopathy, contactless activation of liquids, LERN-HYC, formation of "ball-light", spin isomers...) in living and nonliving systems is complex, but generally understandable. When activated, dipoles of water molecules and ions form vortices of synchronously oscillating, in antiphase, ensembles of dipoles - spin isomers (a kind of molecular "tuning forks" - resonant microclusters). In statics (Earnshaw's theorem), a system of two dipoles (electric, magnetic, nuclear) is unstable (the effect of collapse or expansion), but in dynamics, at resonance, the effect of dynamic stabilization of unstable states is manifested [1, 4, 6].



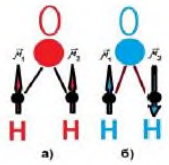
Pic. 1. Dynamic stability of an inverted pendulum and a dipole (H0↓↑**μ**) at resonance [4].



Pic. 2. Dynamic stability in a system of two non-point dipoles [5].



Pic. 3. Dynamic stability in a system of two point dipoles, a) **μ**1↑↑**μ**2, field **H**μ1↑↓**μ**2; b) **μ**1↑↓**μ**2, field **H**μ1↑↑μ2 [6].



Pic. 4. a) **ortho** (**μ**1↑↑**μ**2), b) **pair** (**μ**1↑↓**μ**2) –Spin isomers in water [2].

The alternating electromagnetic field from two resonantly synchronously oscillating dipoles has a narrow frequency spectrum of $\sim 10^{-(13...23)}$ (supercoherent radiation) and decreases $\sim 1/r^n$ (n> 3). As a result, solitary vortices (three-dimensional nonequilibrium dissipative resonance structures) from spin isomers arise in nonequilibrium media [1-3]. The "effective temperature" in such vortices is millions of degrees and their lifetime is tens, hundreds of seconds, minutes, and years, depending on the mode of resonant microclusters. The mechanism of the appearance of solitary vortices in nonequilibrium “activated” liquids at room temperatures [7] is similar to the mechanism of excitation of ball lightning (“ball-light”) in air [1].

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Translated by Shironosova O. E.
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Write me: shironosova.pr@gmail.com