

## Ball Lightning from the Position of Electrodynamics

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It exists the nature mechanism in formation of vortex structures. For example, there are whirlwinds. The streak and ball lightnings (BL), which are plasmatic formations, have vortex structures also. Its pressed boundary layer is formed by the field of surface electromagnetic waves of optical range –surface polariton  $p$ - and  $s$ -polarization. For streak lightning it is screwed line vortex and for BL it is toroidal screwed vortex, which is formed under shorting of streak vortex to itself [1].

Long existence and singularity of BL behavior are identified and explained by the ponderomotive forces (PF) of surface electromagnetic fields (PEMF). They are in proportion to dielectric permittivity of body, to frequency and squared electrical intensity of the field. Ponderomotive Forces, which are composed of gradient and Lorentz forces in view of polarization current, have direction from external environment to the center of plasma formation. They involve atoms and radicals of environment to the plasma, which are re - combined and increase the plasma energy. Energy is generated by water steam and electromagnetic radiation also. BL moves (is involved) into area with the higher electrolyzing of environment. Other peculiarities of Ball Lightning are defined by the same ponderomotive forces of PEMF.

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1. Atzyukovskiy V.A. General ether dynamics. Modeling of the structure of the substance and fields is on the base of conceptions of corresponding gas ether. M.: Energy and atomic publishing house. 1990.