

## **Long - living Plasma Formations in Atmosphere. Magneto - Hydrodynamic Model**

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Operations on obtaining and research of long-living plasma formations (LLPF) in atmosphere for the purpose of a fireball nature finding-out and search of alternative energy sources [1] are carried out.

Dependence of LLPF existence time on the value of speed of change of a current of bit has been experimentally detected, change of this value reached monotonous change of time of existence obtained LLPF from units of milliseconds to about several seconds. Some properties LLPF, such as an electrical charge, the magnetic moment, interaction with dielectric and spending surfaces, interaction with electrical both magnetic fields and electromagnetic radiation ultra-violet, visible and radio ranges, a radiation spectrum are researched.

Results of experiments specify in absence of not compensated electrical charge LLPF, mismatch of temperature of substance in size LLPF to spectra and intensity of radiation, diamagnetism and absence conductance substances in size LLPF. Local suppression

of luminescence LLPF in allowed band of effect of a laser ray is revealed. Surface LLPF smooth also aspires to the spherical form, with growth of time of existence the form of plasmoids becomes ideally spherical that specifies in presence of forces of a surface tension. Under the influence of forces of a surface tension the substance in size LLPF is condensed to such degree that plasmoids by gravity fall downwards at temperature substance exceeding an ambient temperature.

All results of observations and experiments can be explained on the basis of the microvortical model of LLPF conditionally named magneto-hydrodynamic because of usage in it of spun dipoles, containing a polar molecule of water and possessing the own magnetic moment. Interaction of the magnetic moments of spun dipoles presence of forces of a surface tension, smoothness of a surface, the form and stability LLPF, and also diamagnetism, radiation spectra, a warming up of explorers in size LLPF and others properties are described.

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1. The Scientific and technical report (final) on Research and development operation (RDO) «Research of increase ways in a life time of plasma formations» Reg. № 0209U006883 – SESRI "Helium", Vinnitsa, 2008 – 74 with.