# A PHYSICAL STUDY OF THE HESSDALEN ANOMALY AND THE *SETV* HYPOTHESIS

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**On the basis of statistical calculations on "galactic migration" [1] which bring the necessity of insertion of a new parameter inside the Drake formula, the work-hypothesis named SETV (Search for Extraterrestrial Visitation) predicts that exogenous vehicles and/or Von Neumann self-replicating probes may have reached the Solar System, including Earth. The SETV strategy is devoted to the monitoring of the entire solar system inside a sphere with a radius of 50 astronomical units with Earth in its center [4]: such a task is fully guaranteed with the present technology both by using specific scientific payloads on space missions and by using sophisticated multiwavelength detectors here on Earth. The possible presence of probes of extraterrestrial origin on our own planet may be ascertained by using a network of sensing stations which are placed in critical areas were anomalous atmospheric phenomena appear recurrently. So far, over 30 of such places have been identified all over the world. One of them is the norwegian area of Hessdalen. The huge amount of data which were acquired in 18 years by the norwegian university-team known as "Project Hessdalen", has justified the execution of two italian scientific explorative missions (EMBLA 2000 and 2001). The main goal of the expeditions consisted in testing experimentally the highest number as possible of the well-grounded physical theories of natural kind which are known so far - such as: tectonic**

**piezoelectricity and triboluminescence, solar and ionospheric activity, magnetic monopoles, ball lightnings, mini-black holes [2] - which are able to explain some aspects of the phenomenon, but the "SETV hypothesis" has been taken into account as well. The results of mission EMBLA 2000 were presented last year [5]. The results of mission EMBLA 2001 [6] will be presented at this new "Hessdalen Workshop", where it will be shown that the considered light-phenomenon presents sometimes prominent physical anomalies and a high degree of self-sustentation from the energetic point of view. All this appears from the following surveys: a) the luminous phenomenon is able to last up to two hours by emitting up to 1 MW of power, b) the luminous phenomenon itself is openly constituted of many subordinate spheroids which seem to vibrate around a common barycenter, some of which are clearly ejected from the central body; c) the luminous phenomenon is able to change shape and color in a very short time, by showing semi-regular pulsations continuously and for a long time lapse, d) from a physical point of view, it has been possible to demonstrate both spectroscopically and photometrically that the photosphere of the luminous phenomenon behaves like a thermal plasma with a temperature around 6500 °K, with a Planck-type spectrum and a consistent overlap of emission lines of nebular type; e) it has been ascertained that the photometric variability is due to luminosity increases only because of the**

increase of the radiating surface and not because of any changes of the temperature, which remains approximately constant without any observed cooling effect. All this has suggested that the isothermal plasma may be confined inside a very strong magnetic field (magnetic perturbations have been measured in 1984 [3]) and that the approximately globular shape of the plasmoids is due to a sort of "central force" which simulates gravity and which gives the plasmoids the shape of a "mini-star"; f) a small percent of the recorded phenomena behaves like low-luminosity targets characterized by a very low level of optical transparency. There is no doubt from the recorded data, that the phenomenon shows characteristics of self-regulation from an energetic point of view, and so far it is not possible to identify a mechanism of natural origin which is able to act spontaneously with such a surprising efficiency.

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[2] Rabinowitz M. (2001), Int. J. Theor. Phys., 40, p. 875.

[3] Strand E. P. (1984), http://hessdalen.hiof.no/reports/hpreport84.shtml

[4] Stride S. L. (2001), JBIS, 54, No. 1/2, p. 2.

[5] Teodorani M. (2001), ESA SP-496, p. 413.

[6] Teodorani M., Strand E. P., Hauge B. G. (2001), http://www.itacomm.net/ph/embla2001/embla2001_e.pdf