

## Vortexes in the Physical Science and Technology

Andris Buikis\*

Laboratory of Mathematical Technology, Latvian university, Institute of Mathematics and Computer Science, Riga, Raina bulv, 29, LV1459, Latvia, Member of Latvian Parliament (Saeima), Jekaba iela 11, Riga, LV1811, Latvia

With a number of scientific papers on the theory of Physical vacuum [1], Russian physicists Gennady Shipov and Anatoly Akimov came to Latvia in March 1998. In discussions with them I found out that in Lithuania lives an inventor Antanas Bertasius. We met and together formulated patent [2]. Later we constructed mathematical model of this heat generator [3-5]. In this model the viscous electrically conducting incompressible liquid is located between two infinite coaxial cylinders (rings). The electromagnetic force drives magneto hydrodynamic flow between the cylinders.

A few years later we designed similar generator to [6] and created a mathematical model for generator [7,8]. In internal cylinder parallel to the axis are placed metal conductors-electrodes of the forms of bars. Those conductors the alternating current is connected. The water is weakly electrically conducting liquid (electrolyte). This is the mathematical model of one device for electrical energy produced by alternating current in production of heat energy. The distribution of electromagnetic fields, forces, 2D magneto hydrodynamic flow and temperature induced by the system of the alternating electric current or of external magnetic field in a conducting cylinder has been calculated using finite difference methods. An original method was used to calculate the mean values of electromagnetic forces.

The second interesting way in the vortexes exploitation in devices was collaboration with inventor Jürgen Schatz [9,10]. In new technological applications it is important to use vortex distributions for obtaining large values of velocity. The effective use of vortex energy in production of strong velocity fields by different device is one of the modern areas of applications, developed during the last decade. Such processes are ecologically clean; there is no environment pollution. Although, on the other hand the aspect of energy is very important: the transformation process should be organized in such way that vortex energy is effectively transformed into heat or mechanical energy. In our previous papers, we have mathematically modeled the process how to transform the alternating electrical current into heat energy.

The goal of other papers is to develop the mathematical models for new type of ecologically clean and energetically effective devices [11-13]. Such type of devices firstly was developed by Rechenberg [14]. The devices of such type can be considered as the energy source of the new generation. The practical aim of this investigation is to try to understand the process in the element of Hurricane Energy Transformer. This element is central figure in so called RKA (german: ReaktionsKraft Anlage, english: Reaction Force Device) used on the cars' roof for substation reducing the airs' drag.

This is all that's done in practical level in mathematical modeling. However, a number of practical and theoretical questions are left unanswered. Devices sometimes have worked with effectiveness higher than 100%. Important is that in such a system there are strong vortexes and electromagnetic fields or high velocities. For examples, in [2,6] the alternating electro currency with voltage 380 V is about 1 ampere on 1 cm. Theoretically the answer may be that we have contradiction the macro and micro processes in such devices [15]. I agree to Kim [16], that we require new paradigm beyond materialism including information field [1]. It is easy to call such science as pseudoscience,

but within its framework it is possible to portray scalar waves [17-19]. In recent years, there are several other new approaches: space-time as energy [20], ether [21]. We should discuss these approaches with an open mind, without a simple rejection.

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\*Corresponding author: Andris Buikis, Laboratory of Mathematical Technology, Latvian university, Institute of Mathematics and Computer Science, Riga, Raina bulv, Latvia, Member of Latvian Parliament (Saeima), Jekaba iela 11, Riga, LV1811, Latvia, E-mail: [buikis@latnet.lv](mailto:buikis@latnet.lv)

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