

RESONANCE TECHNOLOGIES NOT JUST DESTROY BUT CREATES TO (BIBLIOGRAPHIC STUDY)

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Abstract: a profound study is presented, that concerns the perspective of elaboration and utilization of resonance technologies in nature and technique and shows that the resonance effects are at the base of the acts that have place in Nature and which explain a lot of “anomaly effects” as well as the evolutionary processes of all what is alive or not. It is shown on base of examples that the resonance effects are the most stable for different systems, beginning with the microlevel (molecules, atoms, electrons) and finishing with the macroprocesses that have place in nature and technique.

Key words: resonance, oscillation, frequency, wave, molecule.

Introduction

Currently scientists are developing new high efficiency innovative technologies based on scientifically based approach, which demonstrates that the **resonance phenomena are the most stable state of motion in Nature** [1]. Mechanisms, devices and resonance technologies have $\approx 100\%$ **efficiency** and are most optimal in physics, chemistry, biology, medicine and the **most perspectives for techniques and manufacturing**.

A **special attention** deserve the **works** of the **scientist Shironosov Valentin**, who in 1983 sustained at the magnetism chair of physics faculty of Moscow State University (MSU) the **PhD thesis** in which he **demonstrated that using the resonance is possible to manipulate with higher precision the cells, molecules and atoms**, namely **Mr. Shitronosov obtained a selective routing tools at molecular level** [2]. Therefore, the results of scientific research of **Mr. V. Shironosov served as a strong impetus for the development of resonance technologies**, which efficiency approaches to **100%** [2].

Interestingly, that **in the same year**, one of the authors of this work, sustained the doctoral thesis [3], and later the **habilitate doctor** thesis (in 2001), **which confirmed theoretically and experimentally** that using **resonance phenomena of variable components of electric current could be selectively and consciously directed by the mean of the structural components of deposited galvanic coatings, and as a result – and their physico-mechanical properties, which allowed essentially to increase the operating life duration of parts**, remanufactured with these coatings and which are operating in various operating conditions (lubrication limit, etc.).

The effectiveness of using current resonance phenomena has been established at metal welding with electric arc [4]. The authors of this paperwork **have shown theoretically and experimentally that the structure and physical-mechanical properties of metal deposition can be influenced via an oscillatory polyfrequent circuit** connected in series in the electric chain while the **only element of excitement to the oscillating circuit (RLC) is the electric discharge arc**.

In than 10 years after **Maxwell's** death, **Henry Hertz** demonstrated the existence of electromagnetic waves and discovered their basic properties, yet predicted by **Maxwell** [5].

High frequency oscillations, which are significantly higher than industrial current frequency (50 Hz) can be achieved using oscillation contour and frequency oscillations will be as higher, as the inductance will be lower and the oscillating contour capacity [5].

Henry Hertz recorded electromagnetic waves with a vibrator reception, which was the same construction as the electromagnetic waves radiation transmitter. (Fig. 1).

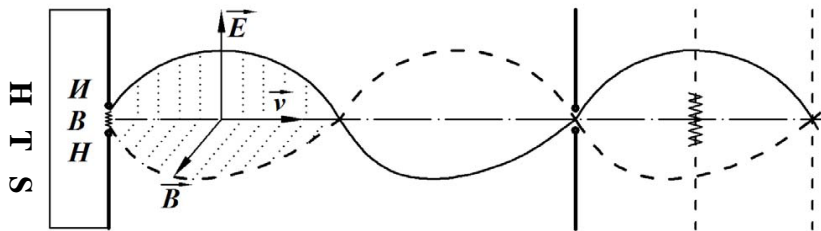


Fig. 1 Hertz's experimental scheme: HTS – high tension source [5]

Henry Hertz obtained electromagnetic waves, exciting via a vibrator with a **high voltage source (HVS)**, a series of **rapid pulses of alternating current**. **Oscillation of the vibrating electric charges creates a complex electromagnetic wave**. Only the oscillations in vibrator are made not only by one charged particle, but by a huge number of electrons moving in line [5].

Under the action of alternative electric field of the electromagnetic wave in the reception vibrator current oscillations are excited.

If reception vibrator's own frequency coincides with the frequency of the electromagnetic wave, resonance phenomenon can be observed and oscillations in reception vibrator occur with greater amplitude.

Hertz detected them, by tracking the occurrence of sparks within a very small gap between receiver vibrator conductors [5].

At the moment there a lot of desperate measures are taken to elaborate a method which will allow transferring energy without any cables. American physicians have successfully tested the **pilot device that is capable to transmit electricity to other devices – without any wire** [6]. As scientific “The Science” magazine reports, **Massachusetts Technical Institute** physicians (USA) have managed to activate a **60 W incandescent lamp at a distance little more than 2 meters – without any cables**. The new device gained the name **WiTricity** and according the inventors it was created using main physics postulates and thanks to that it can be use to recharge other devices, for example – notebooks [6]. As Professor **John Pendry**, physician from **London Imperial College**, mentioned, this installation has the same general parts that were available 10 or even 20 years ago. However creation of that system – is more a time request. In the last several years men became more and more surrounded by mobile devices, which require electricity. Yet at these days **almost everything** became **mobile – without cables, except the most important – the cables them self** [6].

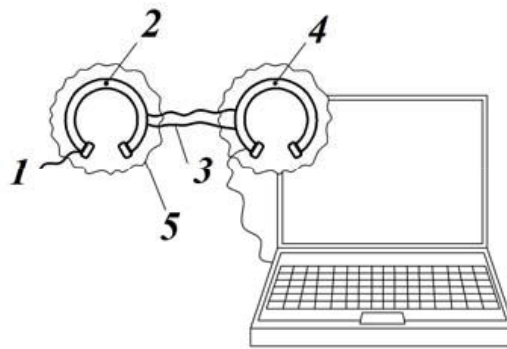
In reality the **pilot installation consists of two copper coils** with a diameter of 60 cm – **transmitter**, directly connected to the energy source, and a **receptor – situated at a distance of 2 meters**, which is connected to an **incandescent lamp, which starts to work**, despite the fact that there is **no electric wire between the transmitter and the receptor**

(Fig. 2a). Yet scientists noted huge energy losses, because only 40% of it reaches the receptor. But the specialists work on that problem, and there is a significant chance that in the near future, the energy losses will be reduced to minimum.



Inventors group (**Marin Soljačić** – center) and their functional pilot device: left – **transmitter**, right – **receptor** and the working lamp.

a)



Operating principle: cable (1) that links the energy source with the transmitter (2). The transmitter creates an **alternative magnetic field** (5) with a frequency of 10 MHz, which is captured by a **coil – antenna, set in resonance** (4). That creates an **energy flux** (3) from the **transmitter** to the **receptor**.

b)

Fig. 2 Working prototype (a) and its operating principle (b).

Massachusetts physicians explain **that at the base of working principle is the resonance mechanism**, in other words the phenomenon **that provokes objects oscillations, whenever a specialized frequency energy actions on it**. But, if two objects possess **identical resonance indices**, and what's more important, **they don't have any action over surrounding objects** [6].

In Nature, **there are a lot of examples of resonance phenomena**. The most well known is **acoustic one** – when several identical glasses are filled with different water volumes, and if we will hit them with a metal spoon, then every one of them will sound uniquely.

In place of **acoustic resonance**, the physicians used in **WiTricity the frequency resonance of electromagnetic waves**. In the installation the both coils resonates in the interval of frequency of 10 MHz and makes an electricity exchange and the longer is

the interaction between the elements, the more is the energy accumulated on the receptor. And the lower is the resonance diapason, the higher is the long wave's diapason and the greater can be the distance between the transmitter and the receptor [6].

Another important fact is that the device has no harmful effect upon human's health, since the installation works at low frequencies, prevalent within a magnetic specter [6].

As Marin Soljačić, one of devices inventors affirms that human's body does not react to magnetic actions. Is mentioned that if the frequency would be significantly higher, (for example 2 GHz), than the microwaves oven effect would appear and it would be another action [6].

Resuming the upper words, it could be affirmed that the development of resonance technologies, in what concerns the transfer of the energy without cables, opens huge perspectives adapting that technologies to power up other electric devices.

The problem of transforming the barn oil, predisposed the well known Kazakhstan physician Ildar Ibrahimov to elaborate a brand new method of processing the oil, based on electromagnetic resonance phenomenon [7].

As I. Ibrahimov explains, the molecule was presented as an oscillator, i.e. as an oscillating system [7] (the most simple oscillator is the spring ball). However, he founded not very useful the standard description of simple oscillating oscillator in free state, (when oscillating parts masses coincide) [7], because he would need to break the molecule in two parts. That's why the author [7], to describe the oscillating process of an oscillator with different weight, had to elaborate a new phenomenon mathematic model (to complete processes mechanics base), and to describe the energy transfer mechanism for this case it was necessary to create a brand new quantum – mechanical mathematic model. The energy will be headed upon the molecule as long as that one will be broken in a specified place, because for this highlighted molecule part mass, and for the breaking point link rigidity coefficient, is characterized by an absolutely strict and exact oscillations frequency [7].

There a known a series of intermolecular link breaking methods, such as: thermocracking, when the energy is transferred to the molecules by their collision mechanism at thermal action movement (the main method of oil processing); oil processing by means of a current of particles which moves with high speed, via an accelerator, but at the moment the technical implementation of that idea is not rentable; ultrasound processing – a method that haves sooner a theoretical meaning and is less rentable that thermocracking method. Besides high energy costs and a low efficiency, all these methods are characterized by the fact that the process can't be controlled – where molecule's collision had place, or particles, there their cracking will have place [7].

Oil presents a wide specter of molecular structures – paraffins, different aromatic hydrocarbons, naphthenes, et al, and their percentage co-report determines oil fractional composition. Ibrahimov succeeded, by means of stable frequency electromagnetic oscillations, to change the molecular composition of oil mixture, especially that, in the technological cycle are solved several problems: first – has place dehydration, second one – there is sulfur neutralization, and the third one – clear fractions raise [7].

So, utilizing electromagnetic resonance effect, I. Ibrahimov managed to deteriorate the paraffins, making the oil lighter, because its viscosity reduces and as a result – it's selling property.

According to I Ibrahimov, if talking about the efficiency, than the method that inflicts the resonance phenomenon it can be founded at a higher level, than the one which inflicts heat. Energy is spent not for heating, but to crack the intermolecular links, and as a result – the efficiency of the process with resonance phenomenon application is much higher [7].

From invention authors [7] theoretical explanations, results that it can have place the wished cracking of intermolecular links, which will immediately bring to gasoline creation. And for a selective change of the fractional content of oil, there is necessary to perform further experiments, on oil processing frequencies, characteristic to diesel, gasoline and lamp oil. In other words, in other words, each fraction requires choosing its own resonance frequency [7].

Those author's thoughts brought us to the idea (a theoretical one for the moment) of the possibility to perform the cold boiling process (without outside heating) of a liquid (and not only...), utilizing the resonance phenomena. Because each type of molecules is characterized by an own oscillating frequency (and in asymmetric oscillator case – a specter of oscillations), is needed to boost the molecule and to apply energy portions (in other words to involve it in resonance oscillations) until the moment when oscillation's energy will be higher that molecular link's energy [8]. That theory could be used to deteriorate any specified molecules, without affecting the surrounding ones [8].

As each type of molecules possesses a frequency, or a strict and well established resonance specter, than the action possibility of that specter on other molecules, tends to zero – assert the author [8].

Molecule physic parameters allow to mathematically calculate its oscillation parameters, and as a result – to detect the necessary frequencies specter to deteriorate one or another molecular structures.

In paper [8] is indicated that, this conception could be utilized in medicine as well, with the purpose to choose a deterioration frequency (or a specter of frequencies) for each type of RNA molecules of viruses and of DNA of bacteria. In that way it's shown [8], that the electromagnetic resonance effect, thanks to a low action intensity upon the molecule through irradiation, is less dangerous than mobile phones. From Mr. Ibrahimov proposal it appears [7, 8], that if we will select some specified frequencies, which will directly influence viruses RNA, than we will have the possibility to fully heal a human's body, the whole environment, and the most important is that nothing but a specified virus type will be endangered. In same way, it will be possible to action on AIDS viruses, bacteria DNA and cancer cells – problem, on which the scientist of whole world works.

The resonance theory in chemistry, conception, that completes classic theory postulates of chemical structure and which affirms, that if for that connection, the classic theory allows the creation of some structural formulas, in that case to real state of these connections molecules (its chemical properties) corresponds not a single formula, but a combination of formulas (superposition, structural resonance). As a result, resonance theory was proposed for this domain to.

Conclusions on the hypothesis

1. Thus at the base of resonance system functioning of L. Polingom proposed yet in 1928-1931, is the sudden increase of the amplitude of oscillation of molecules of a specific link, which under certain conditions can lead to an "expulsion" of those from their corresponding orbits. Exactly this property, in our opinion, can be used to enhance any technological process for obtaining the finished product.
2. According to our opinion, a great influence resonance effect may have on enhancing the processes of heat and mass transfer. To these ones, in particular, can be attached materials drying process. It should be noted that drying process – is to remove moisture from a wet material under the action of heat currents. The elimination rate of moisture, i.e. dehydration, largely depends on the ratio of targeting gradients of moisture and heat. For example, the convective drying (hot air) temperature and moisture gradients are facing each other. This leads to increased drying duration and high energy costs. In this case the resonance process could be useful. Especially since it increases the process without heat treatment of the wet product, and also thermal treatment reduces the quality of the finished product indices. In this case the resonance effect is manifested by: all wet materials differ from dried ones by the presence of water molecules, or aqueous solutions. Water molecule has a particular oscillations frequency. If we will action upon wet material with oscillations of the same frequency but forced (created by a high frequency generator), the oscillation amplitude of water own molecules should increase sharply and practically we can bring the so-called state of "expulsion". And this should bring a strong dehydration of wet material. This drying process, in our opinion, should be much faster than other methods of drying.
3. Processes based on the resonance effect obviously can be used for salting and faster saccharification (jam, sweetness and so on). As all it could be carried out without heat treatment, using resonance phenomena, it will keep up at a maximum the quality natural indices of the finished product.

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