Cold Fusion Now! Podcast episode 11 with Dr. Vladimir Vysotskii speaking from Kiev, Ukraine.

RUBY Greetings listeners. Welcome to the Cold Fusion Now Podcast where we bring you the latest developments in the science, engineering, and business of cold fusion/LENR. I am your host Ruby Carat.

Our guest today is nuclear physicist Professor, Dr. Vladimir I. Vysotskii, Head of Theoretical Radiophysics Department at Kiev National Shevchenko University, Ukraine. Dr. Vysotskii received a Ph.D. in Theoretical Physics from Kiev Institute of Theoretical physics, and a second Doctorate in Theoretical and Solid State Physics. Areas of scientific activity: the problems of X-ray lasers and gamma-ray lasers; new methods of coherent nuclear physics; the problem of controlled nuclear gamma-decay; problems of matter stability and nuclear physics at extreme conditions; nuclear physics at low and extreme low energy; modern problems of biophysics, radiobiology and problem of water structure and water "memory"; investigation of nuclear reactions in biological systems and the problem of utilization (deactivation) of radioactive waste.

He has published about 300 articles and 10 books (about half in English) related to these areas. His first theoretical article in the field of cold fusion **"Reactions of controlled fusion in crystal targets"** was published in 1981 in the Soviet journal of Technical Physics, that is 8 years before the appearance of this term. Hence his experience in this area more than 35 years. He participated and made presentations at the first LENR conference in 1990 in Provo at BYU and subsequently participated in almost all ICCF conferences. His work in LENR is both theoretical and experimental, reporting stunning results of transmutations within living systems in a LENR environment. He is the author of many scientific books including, with Dr. Alla Kornilova, Nuclear Transmutation of Stable and Radioactive Isotopes in Biological Systems.

Welcome Dr. Vladimir Vysotskii!

VIV Dear Ruby, it is great to be here. Thank you for the opportunity to present both our results and my point of view on these very important problems.

RUBY Dr. Vysotskii, let's start with your experiments with biological systems and LENR. You and your colleague Dr. Alla Kornilova have found evidence of transmutations in biological systems. Can you first talk about what do you mean by "biological systems", and, what is it exactly that makes the environment they are in a "cold fusion" environment?

VIV Thank you for the very interesting questions. First of all I would like to said there are no reasons to consider the process of transformation of isotopes in growing biological systems as the special process of "biological transmutation" and separate it from the general physical concept of transmutation as a process of transformation of isotopes in specific dynamical environments, controlled and conducted by the general laws of physics. From this point of view this process is completely analogous to LENR.

On the other hand, this process in biological systems is induced (stimulated) by certain features of growing biological objects' structure. I can explain these features in more details.

Experiments to study the transmutation of isotopes in growing biological systems should be conducted taking into account the specific of the problem so these isotopes from which these elements can be formed result in a simple additional energy conditions. It is an initial precondition of such process.

- In order for experiments to be conducted in a short time, the growth rate of the biological object under study must be large, and the isotope formed must be adapted to this object and must accumulate in an amount sufficient for reliable registration;
- The living object must be sufficiently resistant to the action of the products of vital activity in order to avoid the phenomenon of self-intoxication; it is very important.
- When working with radioactive isotopes, the living object must be sufficiently resistant to the action of strong radiation fields formed by the utilized isotopes; very important for our last experiment for transmutation radioactive isotopes. Also I have two additional points.
- It is desirable (and for stable isotopes - mandatory) the possibility of analyzing the isotope composition of a biological object before and after the transmutation process; very important for control of such process.
- The requirements related to the environment and to the problems of humanism (we are talking about living objects) must be met, of course, as a general condition.

The best objects for such experiments are microbiological cultures, the characteristics of which meet the above requirements to the maximum extent.

We have observed these processes in small bottles that were closed in the case of anaerobic microcultures and open in the case of aerobic cultures. It is a general requirement for a successful experiment in biological transmutation.

RUBY Now, Cesium-137 us a by-product of nuclear fission using Uranium-235, and is hazardous to humans. Of course Chernobyl was poisoned by cesium-137 during the devastating accident in 1986. Describe what you discovered when you added Cesium to these micro-organisms in this LENR environment.

VIV First of all, it is necessary to describe the logic of this process. In our initial experiments, which we started in the early 90s, we investigated the possibility of transmutation of stable isotopes. Our first analyses were limited to stable isotopes. We began studying the nuclear processes in biological systems in the early 1990s.

The basis of the proposed experiments was the principle of "looking for what was lost under the street lamp" - which corresponds to the rule: if you have lost something in the dark, then you should look under the street lamp, because in other (dark) places you will not find anything, of course! This principle gave priority to a reliable method of recording products of potential nuclear reactions, supplemented by the possibility of accumulating of these products.

Based on our understanding of these processes, we investigated the reality of transmutation of stable isotopes, leading to the formation of a rare Mössbauer iron isotope ^{57}Fe (Iron-57) in a medium based on heavy water, where along with the microorganisms and macronutrients [necessary for the growth of microbial cultures, there was a manganese salt, but completely (or with a minimal admixture), there was no iron] in the same bottle.

Immediately after our first experiment, we have observed accumulation of this very rare iron-57. In the case of isotope Iron-57, we have very specific measure of nuclear analysis. Also, the nature of concentration of Iron-57 is very small, it’s about 2% only. So in our initial experiment, we have created iron-57 in concentration up to 50%, increasing by more than 20 times.

In the course of our next research we made 3 important steps.
1. We have moved from the use of clean microcultures (such as E. coli) to syntrophic microbiological associations. This allowed tens of times to increase the stability of the process and its productivity. For example, in our initial experiments in clean cultures, the duration of experiments was about one or two days. After we had used that microbiological cultures, it is possible to create experiments with duration of up to several months. So the rate increases, and the duration of the experiment also increases.   So in the results, we have increased the total efficiency up to one hundred times, a very large increase.

2. We have expanded the class of convertible isotopes from the lightest elements to medium and heavy ones. In one of these research we have observed the reaction of transmutation of stable Cs134 to stable Ba134. It is a very heavy element.
After we have observed the possibility of transmutation of such heavy stable isotopes, our next step with the transmutation of radioactive isotopes.

3. So we have developed a technology for the transmutation of radioactive isotopes into stable ones.

The first experiments on the transmutation of the radioactive isotope Cs-137 were conducted in Chernobyl using real isotopes we received from the emergency nuclear reactor. In these experiments the effective time-life has been reduced from a typical Cs-137 time of 30 years to 250 days. Now the effective time of activation has been reduced from 30 years to 20-30 days. So increasing approximately several hundred times -----very accelerated process.

Measurements of the efficiency of the process of transmutation of radioactive isotopes are carried out using a very simple technique - a remote analysis of the gamma activity of closed bottles containing radioactive water, the necessary syntrophic association and some additional chemical elements (necessary for the optimization of growth of culture)

So very simple, we don't need mass spectroscopy, not elementary analysis, no , we have closed bottle, situated in a stable fixed place, and a fixed gamma detector, and measured radioactivity for example over a period of several days.

So it is very simple technique because the energy of gamma radiation that leaves the isotopes is very large, about 600 eV, it is very easy to measure the decrease in radioactivity.

RUBY Now you'll be talking about this research at the IDA Modecenter on April 9 in Copenhagen Denmark. Are there new results you'll be reporting there?

VIV This year in Oct or Sept, there was a large conference on the physics of water in Bulgaria, in Sofia. And also I gave a report about the deactivation of water solution of radioactive isotopes at that conference. After my report, I had many different discussions with people from the conference. One of them was from Copenhagen, the Danish Physical Society. I gave him my business card, and after he sent me a message, saying that they would like to hear my report at a meeting in Copenhagen.

So I was invited to speak at a special meeting of the Danish Engineering Association and talk about the possibility of deactivating radioactive wastes with the help of microbiological technology. As you know, the problem of safe utilization and deactivation of such wastes is very important in many countries, many European countries, United States, Japan and China and so on, and I often get such suggestions. For example, it is very important for solving the problem of Fukushima, where there are about 500 thousand tons of radioactive water on the territory of the nuclear power plant. Those are for example about each day there was created each day about 50 tons of radioactive water, that was generated for cooling the nuclear reactor. Our technology can successfully solve this problem.

I plan to tell you about new experimental data, and about theoretical models that allow to explain and optimize these processes. Of course, I plan also to present such materials during ICCF21 conference, where I have sent several theses of our reports.

By the way, our theory fully explains all the successful results (Rossi's experiments, the Mills sun cell, experiments with electrolysis, with plasma, and other groups) and shows why radioactive daughter isotopes are not formed in these experiments. It is very interesting because the correct theoretic model of such process can explain three main problems.

First, a great probability of such process, you want of course. Also total absence of radioactive daughter isotopes, second one. And next one, a very strong separation of gamma radiation during such process. It is very interesting and difficult to understand from the usual traditional point of view in nuclear physics, but the method of correlated states is very good at describing this process.

RUBY And we'll be right back with Dr. Vladimir Vysotskii after this:
The new energy research community reports the latest at the 21st International Conference on Condensed Matter Nuclear Science ICCF-21 being held in the Lory Student Center at Colorado State University in Fort Collins, Colorado, US. The conference runs this summer June 3-8, 2018. Registration is now open at www.iccf21.com.

RUBY And we're back with Dr. Vladimir Vysotskii talking about biological systems - mirco-organisms - that have the ability to transmute multiple materials and reduce the half-life of Cesium-137. Dr. Vysotskii, why is this particular research so important to you?

VIV I remember terrible May and June days of 1986 in Kiev after accident in Chernobyl. These studies are important not only for me, they are important for all of us. For example, in the territory of Hanford nuclear storage in the United States, there are 177 burial tanks (radwaste storage tanks) for liquid high-level waste with a total volume of 204,000 m^3. According to estimates conducted in 2013, about 2% of these liquid wastes have already been released into the environment due to uncontrolled leaks from burial tanks. The same situation there is in Fukushima.

There are also several important reasons for this research. First, they should help create a technology for fast, cheap and effective deactivation of water and soil.

Next one: On their basis, it is possible to develop a technology for obtaining rare stable isotopes. So it is not only technology for deactivation for radioactivity, no it is possible to create other rare isotopes.

For example, Iron-57 at a market prices is now at about $20,000 per gram. It is very large value, and very important for any business and industry.

And the next one: there is a method of testing our theory, which is applicable not only to biological objects, but also to the creation of energy sources based on LENR. It is very important for me, because I and any scientist need to create a new method of generating energy not based on the tradition of oil, and also not based on the conventional nuclear reaction because they can get many bad results, like Chernobyl, Fukushima, and so on.

By the way, we have several patents, where this technology is described with reference to biological systems.

RUBY Before we close, I want to ask you about one of your colleagues from Russia, Dr. Yuri Bazhutov, who passed away recently. I had planned to talk with him, and regret that I was unable to. Can you talk a little bit about his contribution to the field.

VIV Yes, it is very bad news I was familiar with Yuri for several decades. He was very enthusiastic and "hot supporter of the cold fusion".

He was very active in his own research and especially in organization of his own conferences. We often argued with him, but it was a controversy to find the truth.

He was both an effective scientist and a very effective scientific manager. He organized and conducted more than 20 conferences, which were a place of active discussions of the most pressing problems of the LENR.

Unfortunately, I am not sure that someone will be able to replace him in this missionary activity. We will always remember him.

RUBY Dr. Vladimir Vysotskii, we wish you success in your research and thank you for speaking with us today.

VIV Thank you Ruby very much. It was very nice to meet you. I remember I met you at the conference in Missouri, ICCF18 conference, about five-six years ago.

RUBY It was fascinating research to hear about it then, and I'm so grateful you are continuing to make progress. The world really needs it today.

VIV Thank you.

RUBY We've been speaking with Dr. Vladimir Vysotski, a nuclear physicist and LENR researcher about his experiments in biological transmutations. You can find more information on Dr. Vysotskii's work in the Journal of Condensed Matter Nuclear Science and at the LENR library at lenr.org.

That's it for today. Find more episodes of the Cold Fusion Now! podcast on our website at www.coldfusionnow.org and subscribe on iTunes.

We can bring transformational change. Go to our page at patreon.com/ColdFusionNow and make a pledge to join our effort. You can also donate direct through Paypal on our website at coldfusionnow.org.

Until next time, I'm Ruby Carat.

[Dr. Vysotskii provided a transcript of some audio lost during this interview. It was in response to the first question *"Can you first talk about what do you mean by "biological systems", and, what is it exactly that makes the environment they are in a "cold fusion" environment?"* He answered as above, but this part got lost in Eureka-Kiev connection. It concerns the possibility of a tunneling effect as a LENR mechanism:

"*We would like to note that all results for the probability of the tunnel effect have been obtained on the basis of the stationary Schrodinger equation and therefore, relate only to stationary interaction of the nuclei, although the process itself is never stationary. Non-stationary nature of any interaction is evident from the fact that a system of interacting nuclei has its own history and has been formed at some point in the past.*

In our numerous works the most universal mechanism of optimization of low energy nuclear reactions on the basis of correlated states of interacting particles is considered. This mechanism provides giant increase of barrier penetrability under critical conditions (very low energy, high barrier), where the effectiveness of "ordinary" tunneling effects is negligibly small, and can be applied to different experiments.
The physical reason of the barrier penetrability increasing in correlated states is connected with the modified uncertainty relation for correlated states.
All preconditions for the realization of this state take place in growing biological systems. In such states, a short-term formation of giant particle energy fluctuations is possible. These states can be automatically formed in many places of the biological system - during DNA replication, on the surface of membranes, at cell division, in mitochondria, etc. The amplitude of these fluctuations can exceed the average (thermal) energy by many orders of magnitude and reach tens and hundreds of kev, which is sufficient for effective nuclear fusion. It is very important that in such processes, radioactive isotopes can never be formed.
Of course, there are special requirements for these processes, which are related to biological specificity.]
And…

The synthesized isotope must be included in the number of micro- and macroelements vital to the bio-system of or their biochemical analogs, and the medium in which growth occurs should not contain these elements, but must contain those isotopes from which these elements can be formed without irreversible additional energy generation;