

## Clarification and Expansion of Virology

Stanislav Ordin

Russian Academy of Sciences, Russia

### ABSTRACT

Studying individual Viruses is necessary and useful. But considering that the number of supposed viruses is many orders of magnitude greater than the number of those studied, and that their “studied level” contains a large “medical” error, and medicine is not related to the exact sciences, studying only viral “individuals” is clearly not enough. After all, ELEMENTARY Combinatorics, expanded by the “Living Parameter” not yet taken into account, already brings the number of Fragments of the LIVING - Viruses closer to Infinity. Thus, the Collective State of Viruses is close to the Borderline between CHAOS and HARMONY. So, to describe both the Viruses themselves and their interaction with Living Cells, it is necessary to UNDERSTAND their INVARIANT properties based on COLLECTIVE Effects. And in everyday language, this actually means that it is necessary to understand more deeply the Ecology of the “environment” at the world and nano-level. That is why the General Phenomenology of Viruses is simply necessary, which gives a Complete Description of the Phenomenon. To describe the flows of chaotically moving particles, Phenomenology uses a system of equations for the connection of these Flows and the Forces that determine these Flows. Thus, the proposed Extended Virology is a Unified Description of the “broth” in which LIFE is smoldering. The Extended Phenomenology of Viruses, like Thermodynamics, with the help of Forces and Flows and generalized kinetic parameters that connect them, allows us to evaluate the EFFICIENCY of the Heat Engine, as well as, in principle, allows us to evaluate the “EFFICIENCY” of Viruses for LIFE in general. At the same time, for a group of Viruses, as a borderline state between Living and Inanimate Nature, it is necessary to additionally take into account the Power of LIFE, which manifests itself during the formation of any living “swarm”.

### \*Corresponding author

Stanislav Ordin, Russian Academy of Sciences, Russia.

**Received:** February 18, 2025; **Accepted:** February 25, 2025; **Published:** March 08, 2025

**Keywords:** Static and Dynamic Nano-Characteristics of Individual Viruses, Collective Effects, Characteristic Parameters of Virus Classes, Social Ecology

*Previously, Doctors became Patients to advance Medicine. Now, literate Patients, seeing that Medicine is “powerless”, with the help of Doctors Who Hear the Patient, save themselves and advance the Science of Medicine [1-12].*

### Preamble

For most scientists, as well as for the average person, the word NANO came into use when the sizes of electronic elements became smaller than a micron and is still associated with purely the scale of the size of an object. For me, who was engaged in research on various crystalline superlattices of the angstrom scale before the fashion for NANO, there was nothing unusual in this scale of NANO, on which the so-called Midi effects were previously studied. And I regularly commented on and corrected naive nano-publications on the Internet. And therefore, at the dawn of the NANO era, correspondents from the glossy magazine Russian Business Consulting approached me with a request to explain in popular language: “What is NANO? Is it new physics or just a new way of laundering money?” It turns out that they had been talking about this for two hours with our director, Nobel laureate Zhores Alferov, and still had not received an answer to their question. My explanation of NANO-physics was placed by the correspondents in an article opposite Alferov’s interview and the article received the Pulitzer Prize “For the best scientific investigation”. After that, I was asked to write popular science

articles on the website of the Nanotechnology Society of Russia, to which I tried to explain what NANO is in more detail to a wide range of young scientists (currently, the number of views of these articles of mine is about a million). And the ESSENCE of the difference between NANO is not only, and not even so much in the size itself, as in the NANO-effects discovered at this scale, but not described by either Quantum Physics or Macroscopic Physics. And carefully studying Local Effects, I came to the constructions of the Physics of the Missing Scale. And I found out the reason why it was previously missed. If the discovery and then use of Quantum Effects did not raise the question: Is it possible, in principle, to conduct Macroscopic Measurements of Quantum Effects? then for NANO-Effects, within the framework of Boltzmann Thermodynamics (I call it Thermostat, since all calculations are carried out within the framework of amendments to the supposed Thermostat) the macroscopic, total Effect from NANO is ZERO. And this Prohibition, actually prohibiting the work of both a modern computer and the “work” of a Living Cell, was removed by the true Thermodynamics of Prigogine’s Flows. And the MISUNDERSTANDING of this led to various kinds of fantasies, such as that a Living Cell also uses the energy of cold nuclear fusion. And the Local Thermoelectric Effects discovered and studied by me allowed me to Expand the Phenomenology [13] and show that in addition to the diffuse Low-Efficiency Thermoelectric Effects of Seebeck and Peltier, there exist, and mainly determine the work of both the processor and the living cell, Local Ballistic Effects (highly efficient and requiring no thermonuclear fusion) [14, 15]. And the ESSENCE of the Phenomenology of the NANO-scale itself is that it describes the

Collective \*Macroscopic) Response of Local Effects in objects of the NANO-scale, thereby removing the “Ban” on the existence of man himself.

Viruses are an intermediate form of existence between LIVING and NON-LIVING Matter, and more specifically, between non-living polymers and Living Cells [16-21]. In this regard, the statistical laws of Non-Living Nature, especially those that are similar to the manifestation of Life, naturally extend to the description of viruses. Thus, it is well known that radiation, including X-rays, affects the human body purely statistically. In this case, an average concentration of molecular bonds broken at the chemical level arises in the body, which a young healthy body usually quickly reduces itself, and which can be relatively easily passivated (neutralized). But there were also extreme cases demonstrating the individual reaction of the body. Thus, a person who received 700 Roentgen was cured, and a person who received 200 Roentgen died, which, naturally, does not correlate with the average statistical maximum of the body’s reaction to radiation. Also, the same Chernobyl gave grim statistics for those who worked on the roof of the 4th block, and for the residents of Kyiv - a large dose of radiation did not always lead to death, but the entry of radioactive particles of about 10 microns into the body (say, into the lungs) caused catastrophic local destruction of living tissue with subsequent death. So, using reasonable caution, it was necessary to safely carry out work in the Nuclear Waste Storage Facility at radiation levels tens of thousands of times higher than the background. But when I came across a dusty truck in Kyiv washed out after Chernobyl, I always covered my nose and mouth with a handkerchief. And in terms of thoughtless, purely bureaucratic fight against viruses, as I have already written more

than once, it does not help the population, but only the preservation of bureaucracy. And in general, the classification of viruses is now carried out only by known signs-manifestations. Viruses are classified by the type of genetic material, replication methods, structure and arrangement of structural proteins (capsids), and the presence or absence of a shell. This classification is undoubtedly useful, but it is, in principle, only a classification of the known-studied (a small fraction of the probable from Statistical Mechanics) and a classification that does not take into account ELEMENTARY things, say, the critical partial pressure of even known viruses!

So, from such a primitive classification (suitable only for demonstrating erudition) the main part of existing and emerging viruses falls out. And these are not at all rarely encountered non-living fragments of LIFE, but just their main number. So, let’s say, we do not know or do not consider it necessary (sometimes) the structure of the Electric Field, but we learned from Coulomb to measure Electric Forces, and from Newton - Gravitational. We do not know how one charge attracts another, but we have studied and use this attraction. Here we need to understand what specific Fields act on Viruses. And, taking into account what has been said, if we start, we need to start from the beginning, with Dynamics, with the Power of LIFE! The struggle between Chaos and Harmony occurs at different levels, from the formation of the simplest molecules and the formation of robots making robots in the Game of LIFE, where the PROCESS OF MAKING itself indicates the importance of Harmonic Dynamics [22], to the formation according to the Recurrent Formula from the simplest fractals of LIFE (the same viruses) to Social Structures [23] (Figure 1).



Figure 1: Layering of Fractals of the struggle between Harmony and Chaos.



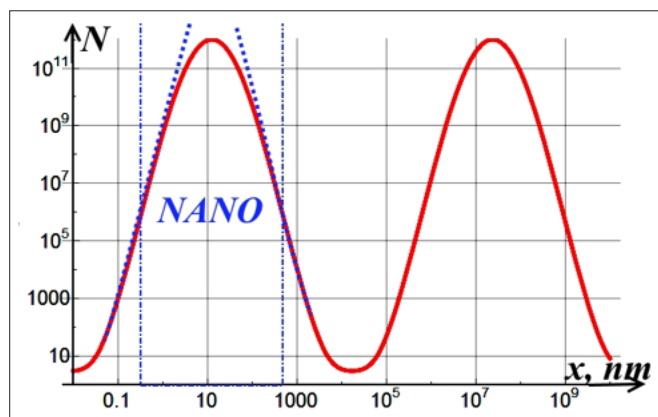
And as I have already noted, the Unified Description of Nature and, naturally, Man necessarily includes a set of various scientific disciplines. This statement is usually associated only with the study of micro-objects. But viruses, as a borderline phenomenon, exhibit both the properties of Inanimate Nature, like the same chain reaction, and collective effects similar to the behavior of a swarm of bees and even a pack of hyenas, both during their collective attack and during their collective flight from danger. An elementary example: viruses “in crowds” scatter under the skin along the blood vessels from the site of infection if you smear the skin over the abscess with furacorcin (and cling to damaged areas, say, in the joints (after smearing the left inflamed palm, you can feel a pain response in both the right hand and the right shoulder). Similarly, joints, or rather their local damage (of which there is a lot with age), “feel” the activation of viruses when the “viral broth” in which the Life of Cells takes place is overcooled. The statement that a person consists of 45% Viruses is nothing more than a beautiful phrase, but the fact that their concentration in the “broth” of LIFE is high is unambiguous. Just as Bacteria in the intestines necessarily participate in the decomposition-splitting of food into fragments, so Viruses, on the surface of a Living Cell, necessarily participate in its growth and in maintaining it LIFE.

And collective similar effects of Viruses are not mysticism, but nothing more than a manifestation of the struggle between Chaos and Harmony at different levels (scales), including at the border of the Inanimate-Living. The description of all border effects, according to the Principle of Logarithmic Relativity, is built on the most studied by us models of the macroscale on inanimate Nature.

And in relation to biomedicine, which is a synthesis of disciplines by definition, I note once again that the widely used X-ray and electronic diagnostics used for inanimate crystals quite strictly, in principle, gives information not about the LIVING Cell or its Half-Living Fragment, but “reads” information on the ashes of burnt paper. That is why many Theories built on the basis of DNA-RNA, moreover, without taking into account the Dynamic Element of LIFE, are very contradictory and often are simply speculative fantasies and are not used in Practical Medicine.

While UNDERSTANDING the location of Viruses at the junction of inanimate and animate nature already gives specific “Selection Rules” that are active and discovered in Nature and, naturally, that must be taken into account when separating Theories about Living Nature. In inanimate Nature, taking into account the Principle of Logarithmic Relativity, these “Selection Rules” give us “allowed” Elementary Particles, “allowed” atoms, “allowed” molecules. And the Number of these “allowed” states of Nature at a low level - Elementary Particles, Atoms, Molecules, as is well known, is not very large. Thus, bathing in a “broth” of subparticles, “allowed” (according to Planck and Einstein - stable, long-lived) Elementary Particles are formed. From them, without going into details of what happens to them during transformation, “allowed” Atoms are similarly formed. Similarly, these Atoms are transformed into “allowed” Molecules, the number of which is not so great. And also on this scale, manifesting itself during the formation from the Elementary Carbon Atom, LIFE begins to manifest itself in the form of Fullerene, which has “memory” and has become cosmic sperm. This logic can be continued on larger scales. Thus, clouds are formed from water vapor, thus rivers, lakes, and seas are formed from chaotic rains. In this case, both external conditions and, naturally, internal characteristics are affected. Thus, surface tension forms mercury droplets. And all this Description of both the microscale and the macroscale from Inanimate Nature is applicable to the collective “behavior” of Viruses. Only it must be supplemented with the “LIFE parameter”. But returning to the NANO-scale of viruses, we have that elementary combinatorics gives

us, when adding the “Living Parameter” to the non-living parameters, a large number of not just chemical “allowed” compounds, but already molecular structures. So, combinatorics gives an order of magnitude greater number of “allowed” fragments of life - Viruses (Figure 2).



**Figure 2:** Qualitative Dependence of the number of Permitted Combinations (Diversity) for “Elementary” Particles of different scales (Red Solid Curve) and its Approximation to an Infinite number (to Thermodynamic CHAOS - Blue Dotted Curves).

And the decrease in the number of “allowed” states begins with the formation of an “allowed” Living Cell and continues with the formation of organs and various types of organisms as a whole. This recurrent formula of fractal logic can, as was said above, be extended to social structures, but modern social structures are much more primitive than the “natural structure” of even an individual organism. So, the analysis of PRIMITIVE social structures will not give anything interesting for science. On the contrary, Science can give recommendations for them.

And at the NANO level, with an increase in the “Degree of Life”, new “Selection Rules” are activated, setting the survival (repeatability) of only individual “permitted” (and even in this specific place) Cells. And at the next stage-scale, new “Selection Rules of Permitted States” further reduce their number to individual types of living organisms. And so on. So, the “Sea” in which Life glimmers is a huge number of various viruses that determine both the normal (optimal) development (growth) of a cell and its destruction (disease, aging). I emphasize that it is not just the chemical composition of the “broth” that provides optimal conditions for the existence of a living cell, but a certain characteristic parameter of viruses in this broth. If the growth of a “dead” crystal from a solution is determined simply by the chemical composition of the solution and the temperature gradient, the growth of a living cell is determined by the viral composition of the “broth”. The vital activity of an individual organ is determined both by the “viral broth” and by the membrane created by Nature, capable of separating these half-living formations - viruses. “Unfinished” LIFE - bacteria, also “live” in the body, but their LIFE is already largely independent and NON-LIVING Analysis can be used only with reservations. Although, judging by the latest research, the state of the “broth” of proto-Life is determined precisely interaction of viruses with microbes. But also, to microbes of non-living Analysis should be applied with caution already as to a separate “Depraved State”. So, to describe the vital activity of a Living Cell it is necessary to take into account both the composition of the “broth” (not only chemical, but also the concentration of “semi-finished products” of Life - viruses), and the partial pressures of different “semi-finished products”, and Temperature, which is the most important characteristic of any living organism that consumes Energy and emits heat and

increases the Degree of Harmony. The efficiency of this Energy Consumption is directly related to the health of the Living Cell.

Due to the lack of a complete Phenomenology of Viruses, from the naive idea that everything is determined by individual viruses, comes the artificially created obstacle to the study of Viruses. “Non-living” Nonequilibrium Thermodynamics on a microscale relies primarily on three independent generalized forces: electrical, concentration and temperature, determining the corresponding independent flows. The simplest Phenomenology takes into account only paired cross effects with the help of kinetic coefficients and is written as follows:

$$\left. \begin{aligned} J_E &= L_{EE}F_E + L_{EN}F_N + L_{ET}F_T \\ J_N &= L_{NE}F_E + L_{NN}F_N + L_{NT}F_T \\ J_T &= L_{TE}F_E + L_{TN}F_N + L_{TT}F_T \end{aligned} \right\} \quad (1)$$

As can be seen from the given expression (1), the electric, concentration and heat flows are associated not only with the forces corresponding to them (these terms of direct effects are highlighted in red), but also with other independent forces (paired cross effects) [24]. This system of equations, taking into account the boundary conditions and at small forces, determines in a linear approximation all flows in semiconductors, which are used in computer elements [25]. On the macro-scale, micro-forces are averaged and it is necessary to additionally take into account the weak gravitational force. In this case, the complete system of kinetic equations is expanded:

$$\left. \begin{aligned} J_E &= L_{EE}F_E + L_{EN}F_N + L_{ET}F_T + L_{EG}F_G \\ J_N &= L_{NE}F_E + L_{NN}F_N + L_{NT}F_T + L_{NG}F_G \\ J_T &= L_{TE}F_E + L_{TN}F_N + L_{TT}F_T + L_{TG}F_G \\ J_G &= L_{GE}F_E + L_{GN}F_N + L_{GT}F_T + L_{GG}F_G \end{aligned} \right\} \quad (2)$$

These flows determine both the water cycle on planet Earth, and water and air flows - the flow of water in a river depends not only on the height of its sources (mountains), but also on the difference in temperatures, concentrations, and even on, the same lightning shows an electric field. (True, this expanded macroscopic Phenomenology directly indicates that in Physics, in fact, the flow of “Charges” of Gravity - Gravitational Mass is not taken into account). Collectives of Viruses, taking into account their intermediate state between Inanimate and Living Nature, must be described taking into account the additional “Living” Force of Viruses :

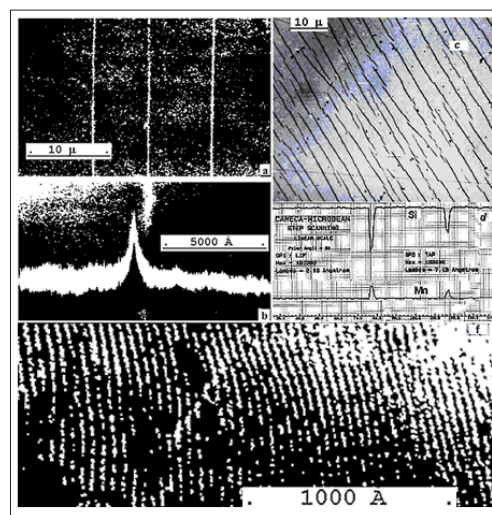
$$\left. \begin{aligned} J_E &= L_{EE}F_E + L_{EN}F_N + L_{ET}F_T + L_{EG}F_G + L_{EV}F_V \\ J_N &= L_{NE}F_E + L_{NN}F_N + L_{NT}F_T + L_{NG}F_G + L_{NV}F_V \\ J_T &= L_{TE}F_E + L_{TN}F_N + L_{TT}F_T + L_{TG}F_G + L_{TV}F_V \\ J_G &= L_{GE}F_E + L_{GN}F_N + L_{GT}F_T + L_{GG}F_G + L_{GV}F_V \\ J_V &= L_{VE}F_E + L_{VN}F_N + L_{VT}F_T + L_{VG}F_G + L_{VV}F_V \end{aligned} \right\} \quad (3)$$

That the activity of LIFE “attracts” both literally and figuratively, we can clearly see in individual behavioral examples, and in how people strive to go to megacities, and in how LIFE is in full swing in the garbage, both individual and social. So, the Power of LIFE acts, without any mysticism, like the same Force of Gravity. The only question is how these Forces are related in magnitude. And this

expanded Virology directly indicates that in modern Biology and Medicine, in fact, the flow of “Charges” of LIFE of the Life “Mass” is not taken into account at all. Hence the unsuccessful attempts to combat pandemics - neither local nor global Flows of Viruses are taken into account in any way. But, at the same time, and perhaps therefore, the main mistake of modern Medicine is Social. And it lies in the fact that People are indiscriminately transferred to patients. Whereas any old person, even one who thought only about muscles while living, knows a lot about his body, which is not covered by the modern level of Medicine. Especially if a person thought about how to eat, drink, breathe, strain muscles and the Mind. I had to face this myself. When the doctor asked me to describe my well-being after the operation, I briefly but in detail in a dispassionate voice described to him my sensations in the area affected by the operation, which made the “doctor” furious and he yelled: “Who is treating whom - “I am treating you or you are treating me!?” To which I explained to him in a slurred voice: “I am used to making precision measurements and describing them scientifically.” At the same time, abstraction from the patient’s sensation of PAIN (which is far from always a reflection of the doctor’s professionalism) levels out Medicine’s use of the self-healing mechanism given to man by Nature. So, it is easier to write off the naive ideas of modern Medicine without any subtle investigations in the category of “Medicine is powerless here.” And although this article is aimed at deepening the scientific UNDERSTANDING of Medicine itself, only its deep UNDERSTANDING combined with UNDERSTANDING of the patient’s sensations makes it possible to make both correct diagnostics and correct treatment. Doctors with a capital letter possess this combination of UNDERSTANDING. And Artificial Intelligence cannot replace it in any way.

So, 16 years ago, in the absence of this combination of UNDERSTANDING, a gross error in surgical intervention with the creation of an abscess was transferred to the category of CANCER. But when I was “diagnosed with CANCER”, I objected to the doctors: “A scratch on the hand causes a tumor, and you, having only suppressed the abscess made by your own hands with antibiotics, think that the tumor is necessarily special - cancerous?!”.

And since I myself developed precision instruments and studied atomic-scale structures (Figure 3), I was able to evaluate the error of the tomograph slides.



**Figure 3:** A scanning electron microscopy highly ordered HSM crystal in a contrast mode in mass of atoms (a, b) and optical polarizing microscopy weakly ordered HSM crystal (c) with X-ray microanalysis (d) and transmission electron microscopy (f) showing the moire pattern of the crystal lattice in the region between the concentration solitons.

Moreover, General Electric, which developed the tomograph, took precautions and wrote in small print on each slide: “Not for medical use - for demonstration to students only.” At the same time, a statistical correlation was observed between the maturation of the “tumor” - in fact, the encapsulation of the infection in the abscess with a drop in body temperature, and its breakthrough - the release of infection into the blood, with a sharp jump in temperature (Figure 4).

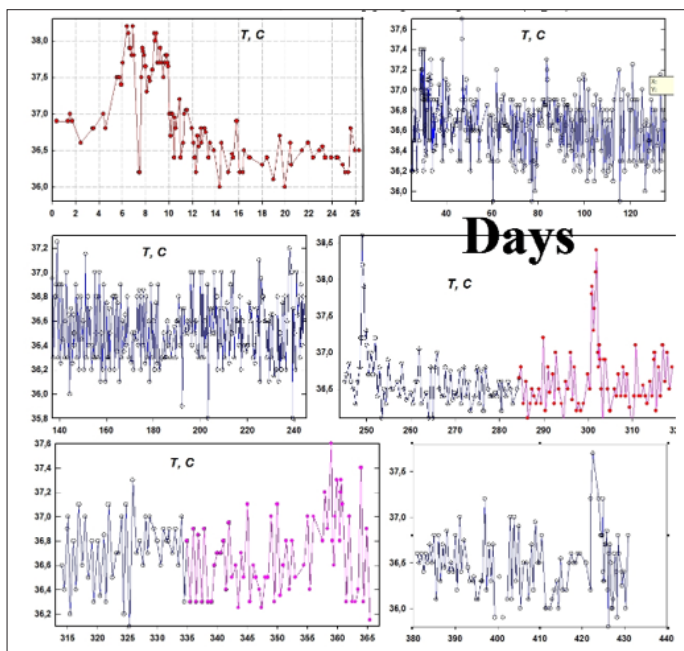


Figure 4: “Subfebrile” Temperature in the Postoperative Period (by days).

But the tomograph was useful - it allowed to identify the trash left in the body after the first operation. And the analysis of the temperature solitons that I conducted (Figure 4) using the Sine-Gordon soliton equation [26] allowed me to convince the doctors to perform a second operation to search for the trash left in the body after the first operation, which had become the centers of infectious tumors (although to perform the “search” operation not for medical reasons, but according to the testimony of a physicist who had self-diagnosed the condition of his organs, in order to free the doctors from liability in the event of a fatal outcome, I had to lie down in the hospital on the bed of a deceased, but not yet “discharged” patient. And with drug treatment, without any chemotherapy and with consultations with doctors who LISTENED to me, it allowed me to completely extinguish the “subfebrile temperature” along with the “tumor” in 3 years and not stop working actively for 16 years (Figure 5).



Figure 5: Congratulations on my Most Popular Scientific Works, published free of charge in Open Access.



But in this work, I am not going to discuss the details of the standard mathematical processing of the ELEMENTARY parameter - Temperature - in physics. I only want to draw attention to the need to use Phenomenology in Biomedicine, methodically developed in Prigogine's Thermodynamics of Flows. Without a qualitative change in modern Medicine, it, rigidly formalized, almost necessarily leads to "paradoxes. And the Principle of NO HARM is extremely poorly observed, which I was convinced of from my own experience and wrote an Open Letter that if I repaired my scientific measuring and technological installations in the same way as doctors "repair" elderly patients, then none of them would have worked for a long time. So, for example, muscle pain in a young organism is not Myalgia at all, it is just the release of acetic acid in them, which triggers the mechanism of their self-healing. Whereas in old age, pain predominates due to a violation of the encapsulation of micro-actions accumulated over the years. But having violated bureaucratic medical prohibitions, in fact, prohibitions on continuing my LIFE, I live and actively, as shown in Fig. 5, work. And in general, the bureaucratic fight against the covid pandemic, which was carried out even by virologists, clearly showed that such "treatment" only made dying easier, but led to an additional increase in mortality. So, Medicine must take into account the collective properties of the "broth" of Viruses, and returning to the social aspect, Medicine must take into account that the composition of the "broth" of viruses and bacteria in slums and in civilized areas of cities is different, and the immune system in different strata of the population is different. In Thermodynamics, Phenomenology is built, as shown above, on the basis of linear equations of the relationship of Generalized Thermodynamic Forces and Flows. And more complex, non-linear descriptions, like tsunamis, are not described by linear equations, but they should asymptotically be reduced to linear ones at small Flows. And there is a developed mathematical algorithm for identifying patterns in body temperature vibrations from noise, which, as I wrote above, allow (pre)dicting the development of the disease. But at the same time, it is necessary to return a person from the state of a Patient back to a person and, thereby, expand diagnostics and the database. It is necessary not only not to reject SELF-Treatment, which, if we take into account the work of all the cells of the body, by 99% determines the recovery of the "patient" during medical intervention, but, on the contrary, to supplement Medicine with it. That is, not to try to act PRIMITIVELY, only hiding behind formal Medicine. And I was convinced that PRIMITIVISM triumphs in practical Medicine, watching how doctors gutted me without anesthesia (they told me to endure 5 minutes, but the operation lasted two and a half hours). And from my observations I concluded that my worst graduate student or postgraduate would have done the same thing much better. But, returning from practical medicine to theoretical, in contrast to "inanimate" Thermodynamics, in biomedicine, as I have already noted, it is necessary to take into account not only the concentration of chemical elements in the environment of the development of a living cell, but also the Physics of a specific Intermediate Scale, the Physics of fragments that are intermediate between inanimate and living particles. Such fragments include viruses, which, naturally, are far from all pathogenic. Moreover, they are the natural environment of the vital activity of a Living Cell. And it is also natural that this environment should have a normal "Temperature" - the state of this viral environment would be "greenhouse" for the cell. And of course, the CORRECTNESS OF THE WORD in Science should be higher than corporate ethics, not only in Mathematics (as Grisha Perelman showed). That is why I inform the scientific community about my new scientific works in popular science articles [27]. Especially since the DICTATORSHIP OF MONEY has leveled UNDERSTANDING even in Science [28], which largely determines the crisis in Medicine.

And finally, we can recall that many researchers have long tried to expand on the viral theme that was stirred up by the pandemic, as I have already written. So now it has again touched upon the problem of the origin and development of CANCER, which is often used simply to remove responsibility from the doctor for unsuccessful treatment. In addition, the viral theme has now surfaced in connection with the problems of aging, which significantly complements the Phenomenology of Viruses.

Thus, the mechanisms of aging and ways of influencing them were discussed by the participants of the first international forum "The Path of the Long-Livers", which brought together 122 specialists from Russia, Belarus, Spain and Mexico. In particular, the experts talked about inflamaging - a new theory of aging associated with the inflammatory process in the body.

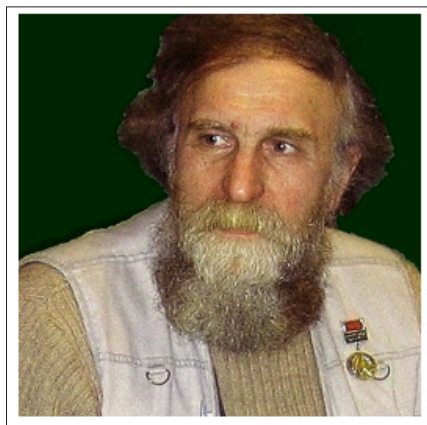
According to one of the forum participants, director of the Institute of Biology and Aging of the Nizhny Novgorod State University, Corresponding Member of the Russian Academy of Sciences Alexey Moskalov, the process of aging develops as follows. As the body ages, the permeability of the intestinal barrier increases (the so-called "leaky gut" effect occurs), the blood-brain barrier between the blood and the brain is disrupted, and the protective function of the skin decreases. Having overcome the barriers, toxins and pathogens penetrate the body, which increase chronic inflammation and accelerate aging. This process affects all body systems. At the level of the nervous system, it leads to the accumulation of toxic proteins, at the level of the cardiovascular system - to the accumulation of calcium salts in the vessels, at the level of the immune system - to a decrease in the diversity of immune cells, at the level of the endocrine system - to a decrease in sensitivity to hormones. So, without going into detail about the problems discussed on the Aging forum, this intersection with the viral theme itself shows that normalizing vital activity requires not just normalizing the viral "broth", but also modifying it - creating additional viruses. Thus, viral Phenomenology also extends to genetic engineering.

And finally, the "broth" in which LIFE is smoldering is not limited to only half-alive Viruses. To the borderline half-alive state, if we start from the theory of the "Game of LIFE", then Viruses, along with Viruses, can also include proteins with RNA-dependent DNA-dependent polymerase, which also participate in the creation of a Living Cell. But just as above the surface of water there is a vapor pressure determined by thermodynamics - a balance between evaporation and condensation, so at the border of the Living-Nonliving, fragments of the Living Cell appear in the form of protein scraps. These protein scraps corresponding to the process of destruction are the opposite of viruses, but, in principle, can affect the Living Cell as pathogenic Viruses. And they, naturally, must also be taken into account in the composition of the "broth in which LIFE is smoldering.

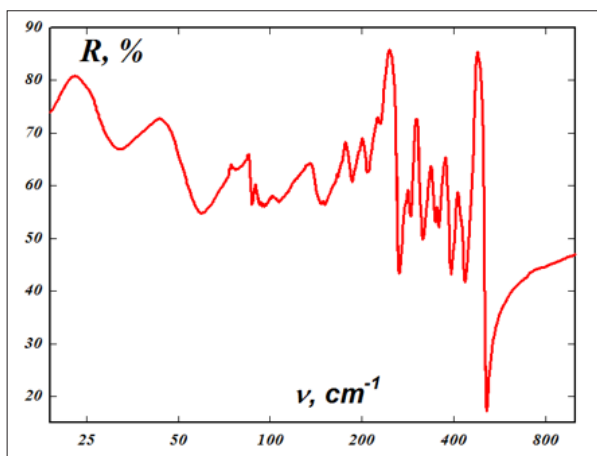
#### **"Viral" Appendix**

Medicine, in principle, does not belong to the category of "EXACT" Sciences. But for me, with half a century of experience as a Physicist at the Academy of Sciences, Physics itself is a very imprecise Science. So, in my old age, I had to correct the gigantic Confusion in Quantum Concepts not only, not even so much of ordinary people, but of leading theoretical physicists [29]. But since with the help of mathematical noise analysis I was able to find not only faults in electronic control circuits, but also a system error in the LabView program itself, in the language of which the installation control program was written, I was invited to the Bekhterev Institute of the Brain to extract visual signals from the

noise coming from the eye to the brain. However, since I had to experimentally study the noise of individual electronic elements and create supersensitive devices (for which I was awarded the USSR Inventor Medal - see the picture below), then I started with the analysis of the measuring device used by medical scientists. And I easily discovered that what I was asked to analyze was determined not by electronic noise, but by large interferences. And in general, I taught my physics graduate students to start their work with the calibration of devices (including computers, which constantly generate and accumulate errors). I made this small "noise" digression in connection with the fact that it is necessary to increase the accuracy of medical experiments in order to see perhaps the most effective characteristic of Viruses associated with the Dynamic Element of Life (DEL).



As I have already noted earlier, without taking into account the DELI, the most accurate structural studies of the Living Cell are incomplete. As was shown by Nobel laureates, the Living Cell "sings" - produces harmonic sounds that continuously change without violating the harmony. So even our NOTES are determined by this Harmony of the DEL. But this Harmony, one can say, has not yet been studied at all. And logically, the fragment of LIFE - Virus has fragments of DEL, from which the "Music of LIFE" of the Virus collective is composed. And this is possibly the most effective tool for analyzing the emergence and life of Virus colonies. After all, the ESD was isolated from the noise track of the long-term reaction of the Living Cell actually by accident and only as an acoustic signal. Whereas in complex and inorganic structures a rich set of electromagnetic oscillators is observed in a disproportionate crystal, the microstructure of which is shown in Fig. 3, not only in the radio range, but also in the Infrared (Figure 6).



**Figure 6:** A set of lattice oscillators in the reflection spectrum of an incommensurate crystal of Higher Manganese Silicide from a plane perpendicular to the symmetry axis C.

But for the viral "gas" (cloud), spectral studies like Fig. 6 should be carried out in the radio range. And having identified the ESD in the registered oscillators, it is possible to classify not only known (studied Viruses). And in practice, such a radar will allow detecting clouds and flows of Viruses, which will allow fighting them during a pandemic not blindly.

And finally, the "broth" in which LIFE is smoldering is not limited to only half-alive Viruses. To the borderline half-alive state, if we start from the theory of the "Game of LIFE", then Viruses, along with Viruses, can also include proteins with RNA-dependent DNA-dependent polymerase, which also participate in the creation of a Living Cell. But just as above the surface of water there is a vapor pressure determined by thermodynamics - a balance between evaporation and condensation, so at the border of the Living-Nonliving, fragments of the Living Cell appear in the form of protein scraps. These protein scraps corresponding to the process of destruction are the opposite of viruses, but, in principle, can affect the Living Cell as pathogenic Viruses. And they, naturally, must also be taken into account in the composition of the "broth" in which LIFE is smoldering.

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