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FRACTAL PICTURE OF THE WORLD AS A PARADIGMAL STATUS OF SCIENCE OF THE XXIst CENTURY

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The world that surrounds us daily constantly moves and changes its appearance. It is not the last contribution to these changes and sometimes some cardinal changes are made by science, which help to generate new concepts, principles, new means of describing and explore habitual or newly discovered objects.

The end of the XX th and the beginning of the XXI st century is characterized by many scientists, as a temporal segment of science, whose conceptual base is replenished with extraordinary rapidity. Terms and concepts that were considered established in many areas of scientific thought are obsolete, while new concepts are rigidly analyzed and only then leave their mark in science, gaining the status of an interdisciplinary conceptual apparatus.

The historical, social, cultural, economic, anthropological, textual, media space transforms the modern scientific world into a scientific and practical interdisciplinary sphere of research and knowledge. The subject of study are more complex vertical and horizontal structures and, accordingly, various scientific approaches are supplemented, improved and at the same time actively borrow and rethink the concepts of natural science disciplines.

To date, one of the priority areas in the scientific sphere is the idea of self-organization, where any unpredictable or predictable, chaotic phenomena and events have certain structural features. Ideas of self-organization first arose in cybernetics, later formed into a separate direction, which was called synergetics. The founder of this approach, H. Haken, noted that synergetics is a meta-science that studies the general nature of all regularities [8].

Synergetics (formed from the Greek word: συνεργία – joint action, cooperation, concerted action) is the theory of self-organization of complex systems.

The term «synergetics» was introduced into scientific use by the English physiologist C.S. Sherrington more than a hundred years ago. At the end of the 20th century, the German physicist G. Haken, analyzing the system of concepts which describe the mechanisms of self-organization, interdependent development processes in the world, begins to use this term («Synergetics: The Hierarchy of Instability in Self-Organizing Systems and Devices»), followed by H. Haken, Belgian scientist, Nobel Prize winner I. Prigogine («Self-organization in non-equilibrium systems», «Philosophy of instability», etc.), as well as a number of other scientists (S.P. Kurdyumov, M.V. Volkenshtein, Yu.A. Urmantsev and etc.) actively use the term synergetics for to study various systems that have their internal and external manifestations.

This scientific direction studies the processes of formation of complex systems and reveals the general laws and principles of the evolution of living and inanimate nature systems, physical, technical, social and others system. G. Haken notes the possibility of using synergetics to various systems that relate to a wide variety of disciplines, which allows us to understand new approaches to the analysis and study of complex systems as a whole [8].

The current state of science requires a new understanding of issues related to the creation of a single information space. It is only synergetics, which explores the complex processes in culture, nature and society, associated with the manifestation of self-organization and the unity of order and chaos,

can answer all these questions. Such provisions are of particular interest for the linguistic theory of the artistic text. The study of the artistic text, study and understanding of individual-author's intentions in interaction with order parameters, confront the model of the text with the synergy of a certain writer [7].

The study and investigation of the artistic text from the position of synergetics allows us to overcome the artificial division between artistic discourse and the artistic text, linking together a multitude of parts which have the property of self-similarity (an object that exactly or roughly coincides with a part of itself, that is, the whole has the same form as one or more parts) or the fractal property.

The words «fractal», «fractal dimension», «fractality» appeared in the scientific literature relatively recently and did not have time to enter most dictionaries, reference books and encyclopedias yet. The term «fractal» (from the Latin *fractus* – crushed, broken, broken) was discovered by the mathematician Benua Mandelbrot, who looked at the world in a new way and familiar objects and phenomena described and presented from a new, unusual point of view [4].

An exact, consistent mathematical definition of fractals has not been worked out until now. In the most general form, beyond the scope of special mathematical definitions, the fractal was defined by B. Mandelbrot as «a structure consisting of parts that are in some ways similar to the whole» [3].

By the end of the 2000s. fractal and fractality was not only formed into full-fledged scientific concepts in the humanitarian discourse, but also began to be used as a quantitative and qualitative criterion for futuristic forecasts and aesthetic assessments. The transition of the concept of "fractal" from mathematics to other spheres of science proved to be extraordinarily productive and demonstrate its perspectives in studying the laws of being, which is expressed in the works of such scientists as E. N. Knyazeva, V. V. Tarasenko, G. G. Moskalchuk, T. I. Dombrovan and others.

From the point of view of the linguistic approach, a fractal is usually called a structure that remains self-similar for any scale change, with increasing or decreasing. There are various fractal forms: fractal patterns, sound fractals (rhymes), syntactic fractals (complex sentence with several subordinate clauses), semantic fractals (concept or artistic image having similar semantics). Similar types of fractals are characterized by the self-similarity of elements and the preservation of their design in various scale dimensions [3].

Self-similarity plays a significant role in all areas of scientific application, as the smallest element of a diverse structure or organization is identical to the whole structure. Such a situation demonstrates one of the main principles of the synergetic picture of the world – the holistic nature of reality or the principle of «unity in diversity» [1].

Fractal modeling increasingly serves as a means of visualizing and describing a variety of systems and processes characterized by complexity, nonlinearity and dynamic chaos – from the turbulence of air flows to social interactions, from human thinking to urban development, from price fluctuations in stock markets to demographic trends. Within the framework of the «fractal» approach, sociocultural systems of any type are considered as fractals and multifractals, that is, as recursive self-similar objects that have a fractional dimension and consist of patterns that are successively reproduced in varying degrees of similarity at each of the descending structural levels.

At the end of the 20th century, the term «fractal» became one of the most popular concepts in a scientific research field. In a sense, the fractal concept began to claim a paradigmatic status in the science of the new century. Fractal acts as a symbol of instability, vividly embodies the properties of the diversity of alternative possibilities for the development of the system. This is a kind of structure that represents a «balance» of order and chaos [5]. In the humanitarian discourse, the question arises of another scientific revolution and the transition to a fractal paradigm and a fractal picture of the world.

We can say with confidence that the concept of fractality initiated the formation of a new scientific paradigm and initiated the emergence of a new concept, the recognition and interpretation of fractal structures in specific cognitive context. On the other hand, in the modern cultural space, which the Russian philosopher V. V. Tarasenko calls the *world IV* (the world of media and digital culture), a special «fractal narrative» also arises as a way of creating media by the world's inhabitant, so-called. «Person Who Clicked», narratives, concepts, cognitive cultural practices [11]. It is the awareness of the universal principle of self-similarity, which extends to the entire natural and social universe, it is the main content of the beginning «fractal» scientific revolution.

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ЗАВДАННЯ МЕТОДИЧНОЇ РОБОТИ ПОЧАТКОВОЇ ЛАНКИ ОСВІТНЬОГО ЗАКЛАДУ

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Забезпечення безперервної освіти педагогічних працівників, підвищення їхнього загальнокультурного та професійно-методичного рівня є визначальним завданням методичної роботи в закладі освіти.

Провідним напрямком у роботі методичного об'єднання класоводів загальноосвітнього навчального закладу зазвичай є колективний творчий пошук новітніх педагогічних ідей і технологій, заохочення молодих учителів до пошуково-дослідницької роботи. В організації методичної роботи слід брати за основу вивчення передового педагогічного досвіду, впровадження його у практику, проведення методичних оперативних нарадіз творчим звітом окремих учителів, практикумів, семінарів, ділових ігор, майстер-класів тощо. В умовах упровадження ідей Нової української школи постає нагальна потреба у вивченні теорії та сучасної наукової методології викладання шкільних предметів, опануванні сучасними методами реалізації оновлених програм і підручників тощо. Вибір форм організації методичної роботи в школі обумовлений багатьма факторами,