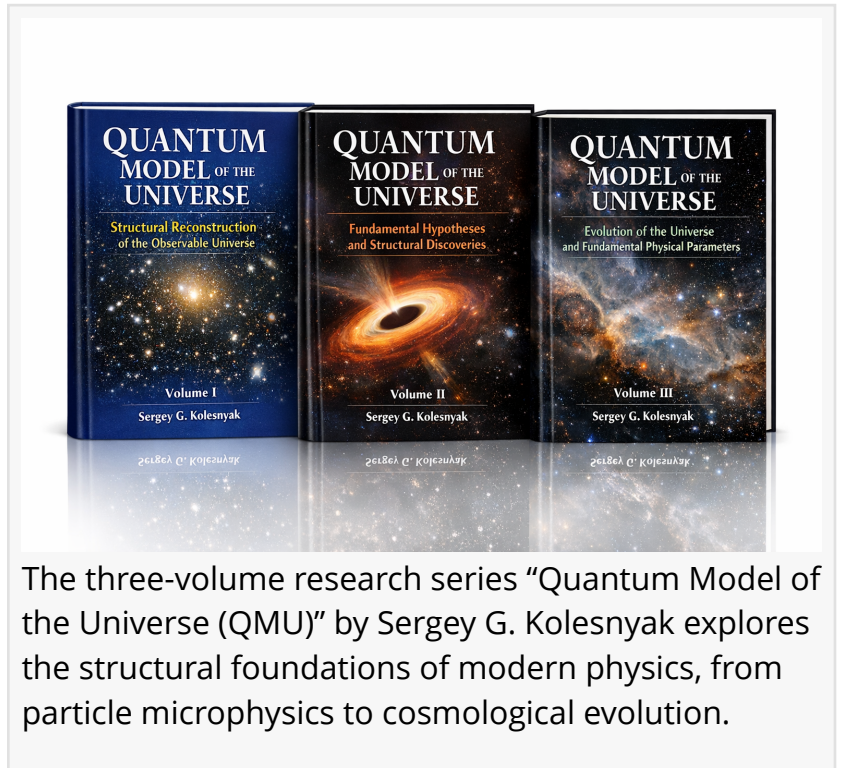


# Toward a Unified Picture of the Universe: Major Three-Volume Study “Quantum Model of the Universe” Released

*A new three-volume study explores how quantum physics, gravitation and cosmology may be understood within a unified picture of the Universe.*

GENEVA, SWITZERLAND, SWITZERLAND, March 12, 2026 /EINPresswire.com/ -- Geneva, Switzerland — March 2026

For centuries, humanity has sought to understand the fundamental laws governing the Universe. In the twenty-first century, that search has entered a new and unprecedented phase. Modern science now possesses an extraordinary volume of observational data about the cosmos — from microscopic phenomena explored in particle accelerators to detailed observations of galaxies formed in the earliest epochs of cosmic history. Yet as this knowledge expands, it increasingly reveals a profound challenge: the scientific description of reality remains conceptually fragmented.



The three-volume research series “Quantum Model of the Universe (QMU)” by Sergey G. Kolesnyak explores the structural foundations of modern physics, from particle microphysics to cosmological evolution.

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Understanding the Universe requires connecting quantum physics, gravity and cosmology within a single conceptual framework.”

*Sergey G. Kolesnyak*

Quantum theory describes the behavior of matter and fundamental interactions at microscopic scales with remarkable precision. General relativity explains gravity and the geometry of space-time on cosmic scales. Each theory stands among the greatest intellectual achievements in the history of science. Yet their unification into a single coherent framework remains one of the deepest unresolved problems in modern physics.

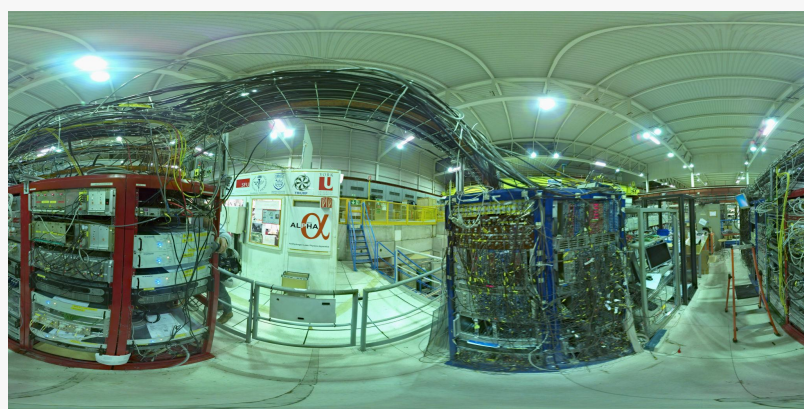
This intellectual challenge has been developing for more than a century. Many of the most

influential physicists of the twentieth and twenty-first centuries addressed the fundamental structure of physical reality, including Max Planck, Albert Einstein, Niels Bohr, Erwin Schrödinger, Werner Heisenberg, Wolfgang Pauli, Paul Dirac, Richard Feynman, Steven Weinberg, Abdus Salam, Sheldon Glashow, Stephen Hawking and Roger Penrose. Their work established the foundations of modern physics and shaped the intellectual tradition that continues to guide scientific inquiry today.

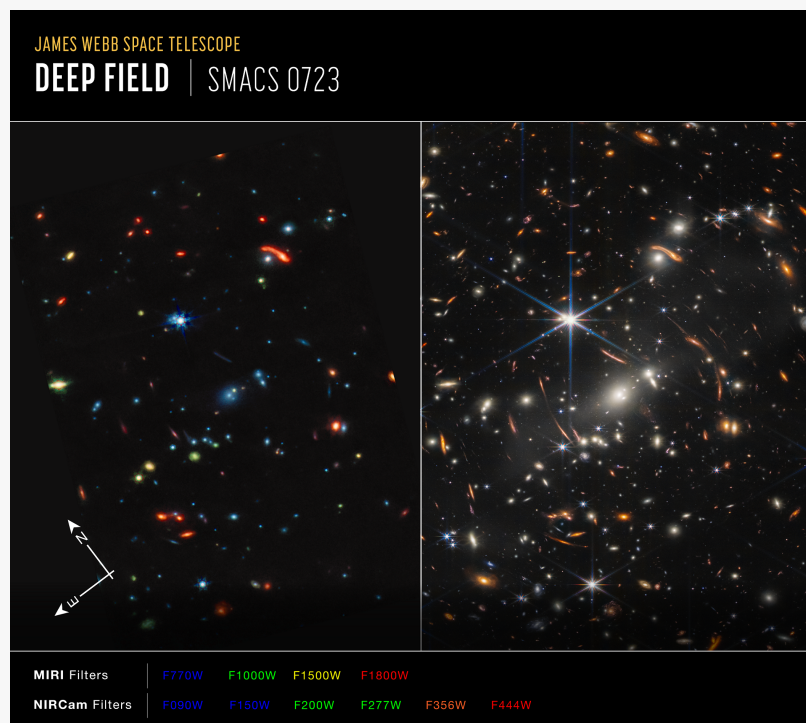
Today, however, this search is entering a new stage.

Over the past several decades, observational science has undergone a profound technological transformation. Experiments conducted at the Large Hadron Collider have significantly advanced our understanding of elementary particles and fundamental interactions. High-precision measurements of the cosmic microwave background by the Planck mission have reconstructed the parameters of the early Universe with unprecedented accuracy. The detection of gravitational waves by the LIGO observatories confirmed key predictions of general relativity. The James Webb Space Telescope has opened an entirely new window onto the earliest galaxies and stellar systems. Large astronomical surveys, including DESI and other cosmological programs, are mapping the large-scale structure of the Universe with increasing precision.

Never before has science possessed such a vast body of empirical information about the nature of the cosmos. Yet the accumulation of data also highlights a central issue: observations alone do not automatically produce a unified picture of reality. Particle physics, cosmology,



The ATLAS detector at CERN's Large Hadron Collider, one of the most powerful scientific instruments used to study the fundamental structure of matter. Image Credit CERN



Deep-field image of distant galaxies captured by the James Webb Space Telescope, revealing the large-scale structure of the early Universe. Image Credit NASA / ESA / CSA / STScI

astrophysics, and gravitational theory still evolve largely within separate conceptual frameworks. However, the deepest questions about the origin and evolution of the Universe require the synthesis of knowledge across all these disciplines.

It is within this scientific context that a major new research work has been published — the three-volume monograph “Quantum Model of the Universe (QMU)”, whose total length approaches two thousand pages. The study presents a systematic investigation of fundamental questions in modern theoretical physics and cosmology, ranging from the microphysics of elementary particles to the cosmological evolution of the Universe and the role of fundamental physical constants.

The monograph is available in open access through the international scientific repository Zenodo.

### [Quantum Model of the Universe \(QMU\), Volume I: Complete Edition](https://doi.org/10.5281/zenodo.18900572)

<https://doi.org/10.5281/zenodo.18900572>

The first volume presents an analytical reconstruction of the observable architecture of the Universe. It examines the empirical constraints that modern observations impose on fundamental physical theories and integrates results from collider experiments, measurements of the cosmic microwave background, large astronomical surveys, and observations by modern space telescopes.

Quantum Model of the Universe, Volume II — Fundamental Hypotheses and Structural Discoveries

<https://doi.org/10.5281/zenodo.18769967>

The second volume focuses on the conceptual foundations of modern physics. It analyzes fundamental hypotheses underlying quantum field theory, gravitation, and cosmology, and explores the structural principles that may link microscopic physical processes with the large-scale evolution of the cosmos.

Quantum Model of the Universe (QMU), Volume III — Cosmology, Vacuum Dynamics and the Evolution of Physical Constants

<https://doi.org/10.5281/zenodo.18818028>

The third volume examines cosmological evolution, the physical properties of the quantum vacuum, and the possible variability of fundamental physical constants that determine the structure of matter and interactions. These parameters play a central role in shaping the history and large-scale structure of the Universe.

Across its three volumes, the monograph addresses a wide range of scientific questions that lie at the heart of contemporary cosmology and theoretical physics. Among them are the origin of the Universe and its initial conditions, the processes that shaped the earliest stages of cosmic evolution, the formation of galaxies and large-scale cosmic structures, and the physical mechanisms behind the accelerated expansion of the Universe.

Particular attention is devoted to the role of the quantum vacuum in cosmic dynamics and to the possibility that fundamental physical parameters may evolve over cosmological time. If confirmed, such evolution could profoundly reshape our understanding of the structure and history of the Universe.

The study also examines several major observational puzzles currently debated within the scientific community. These include the early formation of supermassive black holes, the unexpectedly rapid emergence of massive galaxies, and the high metallicity observed in the young Universe — phenomena that challenge aspects of standard cosmological models.

Another topic addressed concerns the distribution of life in the Universe. Despite the discovery of thousands of exoplanetary systems in recent decades, convincing evidence of extraterrestrial civilizations has not yet been identified. Understanding this paradox may require insights not only from astrophysics but also from deeper principles governing cosmic evolution.

The author, Sergey G. Kolesnyak, is an independent researcher in theoretical physics and cosmology whose work focuses on the structural foundations of modern physics and the possible connections between quantum theory, gravitation, and cosmological dynamics.

He describes the Quantum Model of the Universe not as a final theoretical solution but as an open scientific initiative.

Scientists, universities, research institutes, and laboratories worldwide are invited to join the discussion and further development of the project. Progress in understanding the fundamental structure of the Universe depends on international cooperation and the exchange of ideas across scientific disciplines.

Researchers in theoretical physics, cosmology, astrophysics, and related fields are encouraged to contribute to this ongoing scientific dialogue.

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