

*Abstract*

# The Universe is An Information Ecosystem <sup>†</sup>

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<sup>†</sup> Presented at the IS4SI 2017 Summit DIGITALISATION FOR A SUSTAINABLE SOCIETY, Gothenburg, Sweden, 12–16 June 2017.

Published: 9 June 2017

**Keywords:** information; energy; matter; limiting particle; main body program

The universe is a constantly evolving information ecosystem, which originates from the information as the energy (the essence of information is energy), thus forming the material, life, spirit and other elements of the universe. There are only two kinds of basic objective existence, such as information (energy) and limiting particle, which constitute the myriad things in universe.

Information is the representation of energy. Information and energy are both non material and objective existence. They have identity. The information of subjectivity is also composed of quantum sequences. Humans consume a lot of energy in thinking, which also proves the identity of information and energy. Simple information does not exist and is only possible through the medium of energy. Information and energy constitute the two sides of an entity, which embodies the identity of information and energy. The fact of the interconversion between matter and energy also establishes a connection between them.

Information is the origin of matter. In terms of objectivity, matter itself is a set of information (energy) and substance is information aggregation according to the equation of mass energy conversion. In terms of subjectivity, mankind can only understands the material world through information. While human being is going far to uncover the mystery of matter, our understanding of matter is limited to the information presented by itself. Matter shows the quality, time, space, and these three aspects are also derived from information. The concepts of time and space in human's understanding are just the results of interaction of subjective and external information. Therefore, information displays space and time emerges in the process of information. Time is a successive state of information.

The most basic substance of the universe is the limiting particle formed by the information (energy quantum) collection. The limiting particle is composed of 8 quantum constitute the cube and all the limiting particles in the same spatial scale. The logical fact of the existence of the limiting particle is as follows: the limiting particle is the transition point material from the non-material objective existence to the material objective existence (the real matter). The universe must have the smallest unit of matter, which is the limiting particle. The flat space of the universe is made up of limiting particles. Quantum (information) is transfered by the carrier of limiting particles. The fundamental reason for the aggregation and separation of substances (i.e., motion) is based on the decomposition and synthesis of the limiting particles. The fundamental reason for the expansion of the universe is that a large number of quantum particles can be synthesized by limiting particles.

The movement of the universe is based on the mutual transformation between the limiting particle and the energy, which is called twin-particle law, the first or general law of the universe. The twin-particle law can well explain the mass energy conversion equation. It fully proves that energy and mass can be transformed into each other. It also proves that the four fundamental interactions do not exist, and that it is only the spatial illusion caused by the mutual transformation between the limiting particle and the energy. The universe does not have fundamental particles with well-defined

boundaries. The standard model is an illusion based on limiting particle decomposition and synthesis.

The essence of spirit is main body program. Main body program shows spirit in the process of operation. Main body program is a natural formation of the specific language coding sequence based on the formation process of the body's life. Its essence is the subjectivity of the quantum sequence (information sequence). Theory of Main Body Program radically reveals the secret of life and spirit and that the ultimate cause of biological evolution is the internalization of main body program. It is only because of the main program of internalization and externalization of life (Evolution), a biological form can develop from primary stage to the advanced stage thus from low-level biological patterns to advanced, and ultimately lead to the human and the human spirit.

This article unifies the nature, the information (energy), the society, the spirit through the information origin theory, the limiting particle theory, the main body program theory. Thus it is called unified information theory. Unified information theory discusses the basic problems of the information structure, the objectivity of cognition, the formation of objective existence, and explains the basic role of information (energy) in the universe, the limiting particle theory. The limit particle theory reveals that the most basic level of matter is composed of limit particles, it is shown that the mass of matter and space are composed of limit particles, and that all things and phenomena in the universe are based on the limit particle formation and decomposition. On this basis, through the layers of in-depth analysis, from the point and surface, demonstrates the physical and chemical and biological problems at the micro level, macro level, points out the existing defects of great scientific, reasonable interpretation of many science can not explain the problem. Unified information theory through the main program theory to explain the fundamental reason and essence of life and spiritual formation, points out the defects of the theory of evolution, and on this basis, further deconstruction and reasonable construction of the humanities and Social Sciences, philosophy and religion, it is completely opened up the barriers between natural and social.

The study of information ecology is a unified information theory. Information (energy) evolves the universe, and generates the human cognition and Research on the information, this is the information ecosystem. Information ecology includes the whole universe. Research on information ecology to sort out the information content and the corresponding ecological logic, it is beneficial to understand the human understanding and transform the world of the information process, through the study of information ecology, can see the truth of the universe, grasp the laws of the universe.



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