

Brief Introduction of The Theory of System Relativity

Liu Taixiang

The Theory of System Relativity is based on the premise of the assumption of the quantization of matter and introduces a brand new view of matter in terms of "monism and dualism". In view of the serious contradictions existing among the current different branches of physical theories, the author conducts a preliminary study from the perspective of the Theory of System Relativity and attempts to incorporate the different branches of physical theories into the theoretical framework of the Theory of System Relativity. Especially to the general relativity and the quantum theory, the author takes his unique view that the two different theories may achieve unity although the serious contradictions existing between them.

1. Preface to the 2nd edition

Since the 16th century, when natural science was first liberated from theology, numerous people, including Copernicus, Galileo, Newton, and A. Einstein, have bravely explored the unknown areas of human existence with the scientific spirit of determination. After dozens of generations of unremitting efforts, we eventually established the magnificent temple of today's science. Although the work or ideals of many people have been wrong throughout history, we finally found the right way forward through these efforts; moreover, because of the existence of these wrong thoughts, the correct ideas shine even brighter. Therefore, we should salute all of our ancestors who explored and struggled with the scientific spirit.

At the end of the 19th century, classical mechanics, classical electrodynamics, and classical thermodynamics (along with statistical dynamics) formed the three major pillars of our understanding of the physical world. They were tightly bound together to construct a gorgeous and majestic hall of physics. In our known macroscopic world, classical physics is so effective that physicists began to believe that all basic laws in the universe had been discovered and that physics had been perfected. Physics had reached its developmental limit, and there were no longer any further breakthroughs to be made.

However, there were still "two small dark clouds" floating "in the sunny sky of physics." These two dark clouds were the problems encountered by classical physics with respect to the theory of light ether and the Maxwell-Boltzmann energy equipartition theorem. In the end, it was these two dark clouds that eventually led to the outbreak of the revolutionary theory of relativity and the revolutionary quantum theory.

Before the 1930s, A. Einstein created first the theory of relativity and then quantum theory. However, the regimes of application of these two theories are entirely different. A. Einstein's theory of relativity is dominant in the cosmoscopic, high-speed domain, and quantum theory dominates in the microscopic domain. Although the original "two dark clouds" have been dispelled, the originally unified physical world has been divided into two incompatible physical worlds. This new problem seems far more difficult to solve than the original "two dark clouds."

A. Einstein's theory of relativity is deterministic, whereas quantum theory follows the uncertainty principle. These two theories are opposite in their relationships with causality. The two theories are so incompatible that even now, all efforts that have been attempted to unify them have ended in failure. Hence, we must once again face the embarrassing situation of "accepting both A. Einstein's theory of relativity and quantum theory," just like the necessity of accepting "wave-particle duality."

However, inspired by thoughts such as "various species are composed of cells," we have developed the

philosophy that "nature (matter) is unified." In other words, there should be one basic underlying principle on which the entire material world is based. Therefore, A. Einstein's incompatible theories of relativity and quantum physics cannot both be correct. At most, one is correct, or perhaps both of them are wrong. This book espouses the belief that both relativity and quantum theory are wrong. In the book *The Trouble with Physics*, L. Smolin, an American physicist, noted one of the mistaken aspects of these theories, i.e., "quantum theory and general relativity make a mistake about the nature of time at the deeper level."

In fact, in addition to the nature of time, the nature of space and the concepts of elementary particles, mass, and charge are also problematic. Using space as an example, in general relativity, a gravitational field is geometrically related to non-Euclidean space, whereas in quantum theory, space (free space) is a special state of a quantum field; in the Theory of System Relativity, space is the form in which the geometric properties of the shuon field are expressed, and a gravitational field is the form in which the kinetic properties of the neutral shuon field are expressed. Space (free space) is matter in a fluid state consisting of shuons, and it is a general form of matter. By contrast, particles and objects (i.e., matter in a rigid state) are special forms of matter.

The Theory of System Relativity is predicated on the belief that the root of every error is that people apply their macroscopic experiences directly to the cosmoscopic and microscopic worlds. The cosmoscopic and microscopic environments are different from the macroscopic environment, and we would have totally different experiences if we were able to personally enter those environments. However, we can neither shrink to the scale of the microscopic environment nor expand to the level of the large-scale cosmoscopic environment. Therefore, physics deviates from its correct direction of development because we simply assume that our macroscopic experience can be directly applied to microscopic and cosmoscopic observations. In the subsequent development of physics, we proceed to deviate farther and farther from the correct direction.

Moreover, even in the macroscopic (surface) environment, based on the mass model and charge model of matter that have been established in accordance with our experiences of universal gravitation and the Coulomb force, we can explain only the majority of macroscopic phenomena, not all. An ever-increasing number of macroscopic phenomena are being discovered that cannot be explained using the mass model and charge model of matter.

The root of the problems discussed above is that our experience is inseparable from our senses, and our senses are the product of long-term evolution to be compatible with the macroscopic environment. In other words, our senses were formed in a very unique environment (i.e., the surface environment) that is merely one element of the entire universe. Therefore, there is a natural limitation on the ability of our senses to understand the nature of things because our senses can perceive only the appearance of things and only part of those things (at the macroscopic level) rather than the entirety of objects and nature as a whole. Therefore, the basic nature of the concepts of mass and charge, as established in the macroscopic environment, is in doubt.

In the various branches of current physical theory, with the understanding that there are some profound contradictions and many new issues may emerge, the author took objective phenomena and physical practices as his experimental basis and established his ideas on the theoretical basis of fluid theory and the theory of vortex motion through analysis and induction. On this basis, the author developed the view of matter and the view of time and space that are proposed in the Theory of System Relativity and preliminarily established a brand-new basic framework for understanding the underlying principle of matter.

Therefore, the Theory of System Relativity is not an extension of A. Einstein's theory of relativity.

Concerning the terminology "Theory of System Relativity," "system" means the whole, "relativity" means the part, and both are nouns rather than adjectives. According to this physical idea of an approach that is simultaneously global and partial, all our observations are partial observations of the whole, and all branches of physical theory are partial theories of the entire universe. There are various connections among all partially applicable theories. Therefore, these theories can constitute an organic whole, i.e., a theory of everything. Moreover, "relativity" also has the meaning of being relative. For example, the observation of a force or a state of motion is relative. This is the origin of the term "Theory of System Relativity."

In the Theory of System Relativity, we adopt the research methodology "from small to large" and propose the concepts of the shuon and the cnon based on the assumption of the quantum nature of matter; then, we use the cnon to gradually construct particle models for the photon, electron, proton, atom, and molecule and eventually to construct the colorful material world that we see. The Theory of System Relativity adopts a brand-new conceptual system that is different from past concepts. Through the establishment and updating of concepts, the Theory of System Relativity establishes a new approach to understanding nature and a new method of describing nature and, in the process, paints a brand-new picture of the world.

Although there are considerable differences in the basic views of matter and of time and space espoused by the Theory of System Relativity and modern physics, the Theory of System Relativity can accommodate various theoretical branches of modern physics and define the suitable ranges of application for these theoretical branches. In other words, in the framework of the Theory of System Relativity, some universal, basic concepts of modern physics are no longer universal or fundamental; instead, they become partially applicable physical concepts or physical arguments. Therefore, the branches of physical theory that are incorporated into the Theory of System Relativity are inevitably relegated to a theoretical status of "approximate" or "equivalent."

This book is primarily a discussion of the fundamental principle of matter on the level of theoretical physics. In the past two years, the author has received the guidance of several professors as well as substantial support and assistance from Xiaoke Ma and other college classmates. The author has also read and referenced relevant information in the "Baidu Encyclopedia." Here, I wish to express my appreciation to them, my family, and others who support the Theory of System Relativity.

Because the system of the Theory of System Relativity is very large and covers an extremely broad field, the entire framework of the Theory of System Relativity certainly cannot be comprehensively established through the efforts of one man in a single day. The author anticipates that the Theory of System Relativity is the horn to sound the charge toward the next great revolutionary paradigm of natural science. The Theory of System Relativity can guide scientific research groups all over the world toward a consensus that will allow them to unite and collaborate and to continue the revolution in physics that began in the early years of the 20th century and proceeded through its end to finally achieve the dream of unification of A. Einstein and others who have gone before us.

This book was created because my classmates and friends urged its reprinting. Because of time constraints and the fact that the relevant data and level of knowledge are limited, it is inevitable that it will contain some errors in explanations or definitions in the series of inferences derived from the basic principle of the Theory of System Relativity. Here, I would ask for both understanding and criticism from its readers.

Liu Taixiang
October of 2012, in Jinan

2. About the revisions to the 2nd edition

Since the publication of the 2nd edition of *The Theory of System Relativity* (by the Scientific and Technical Document Press of China in 2012), it has been received favorably by some readers and has also received positive comments from some professors and scholars, which are provided in detail below.

The book *The Theory of System Relativity* written by Liu Taixiang is an important achievement that is the product of in-depth and thorough exploration and thinking. Many ideas presented in the book are creative and worthy of careful study and research.

In particular, the view of matter in terms of "monism and dualism" presented in section 1.2 of this book states that "all matter consists of energy quanta, and the energy quantum is the most basic unit that constitutes matter." The concept of the energy quantum that is proposed by the author is totally different from the quantum defined by M. Planck and has a broader scope of application. This concept can be considered to be a breakthrough. The author further discriminates between the energy quantum of the fluid state (continuous state), which he calls a "shuon," and the energy quantum of the rigid-body state (discrete state), which he calls a "cn particle." Moreover, the author presents detailed, in-depth and comprehensive studies and investigations of both types of energy quanta. The proposed concepts and subsequent studies possess very important significance for guidance and demonstration.

Moreover, in Chapter I, "Introduction to matter," the author proposes that if we progress these concepts in their logical direction, it seems possible that we may be able to use the concept of energy to unify mass and charge. What is more, it has also occurred to me that if we can further apply the concept of energy to unify more concepts, this book will constitute an important breakthrough in physics and possibly even in natural science as a whole. I anticipate that the author will make additional contributions in this arena.

Overall, I fully agree with many points of view presented in the text, and I hope that the author will produce further in-depth studies and achieve more results. (March of 2013)

----Yuhua Fu, researcher at Sinopec Research and Development Center

The Theory of System Relativity written by Mr. Liu Taixiang is consistent with classical physics, including Taichi. They all pursue the same thing, but they all need to solve certain specific problems. The author proposes the following direction of development: that the electron can be broken down into a photon. The philosophy of Mr. Liu's thought process is the same as that of classical physics. (March of 2013)

----Yinghuan Guo, Professor of Institute of High Energy Physics,
Chinese Academy of Sciences

I have conducted a preliminary reading of *The Theory of System Relativity*, and my overall feeling is that Mr. Liu Taixiang is a very thoughtful scholar; the content of this book is rich, and I suggest that the name of this book should be changed to *The System Theory of the Universe*. (May of 2013)

----Tsao Chang, Research Professor of Space Physics, University of
Alabama, USA

Because I have some social duties that I must fulfill despite difficulties encountered because of my physical shortcomings, it took me a while to read *The Theory of System Relativity*. Nevertheless, I still finished reading it. My motivation to do so originated from my curiosity for new things: there is a Chinese

man who builds a system to explain the entire world from the microscale to the macroscale and even to the cosmoscale, and this work is unprecedented. It is not empty praise to call this work a "masterpiece."

I believe that the interpretation of this theory is successful and that the system is rather complete. It still requires verification, which may yet be a long process.

I am eager to see whether Mr. Liu Taixiang can accomplish this achievement! (June of 2013)

---Zhanwei Fang, Professor at Shantou University

After reading "Introduction to the Photon" (which was later incorporated into *The Theory of System Relativity*), Professor Shijie Zhang of the School of Physical Science and Technology at Yunnan University commented as follows: "The advantage of this article is to creatively propose a model of the photon structure and to adopt an approach based on graphical representation for this description. The new findings are current scientific frontiers and urgently require explanation using this new photon theory" (July of 2012).

In addition to the positive assessments mentioned above, some readers have also offered valuable suggestions and discussions. For example, Professor Qisheng Jiang from Beijing University of Aeronautics and Astronautics noted that "the quantum of M. Planck ($\epsilon=h\nu$) has different values." Therefore, in section 2.3, we added a discussion of the relationship between the "energy quantum" of a harmonic oscillator and the "energy quantum" of a photon.

One more example is that in June of 2013, Chinese-American Professor Tsao Chang was invited to Jinan. Over a span of two days, we engaged in extensive and profound discussions and communications regarding the problems of space, time, gravitational force, and the universe. In particular, we noted that "the anisotropy of the cosmic microwave background radiation originates from the movement of Earth relative to the microwave background, which is approximately 390 ± 60 km/s." This velocity is essentially consistent with the statement that "the rotational speed of Earth with respect to the Sun is 345 km/s" that is found in textbooks. Therefore, we supplemented the content presented in section 4.2.5 with this observation.

As mentioned in the preface to the 2nd edition, "because the system of the Theory of System Relativity is very large and covers an extremely broad field" and "the relevant data and level of knowledge are limited," there are still many elements of the book that require improvement and are not fully complete and/or satisfactory, and if you can offer some insight that may address these shortcomings, you are welcome to enlighten me.

Liu Taixiang

In "Spring City" Jinan, June of 2013

3. About the lite version

This book is the lite version based on the 2nd edition (revised version) of *The Theory of System Relativity* (published by ACADEMIC PRESS CORPORATION in 2013, Chinese version). In this version, content concerning the historical progress of physics and that is redundant or is of little direct relevance to physics has been deleted, and the text has been supplemented with the latest research. These modifications make the contents of the book more compact and easier to read.

By the author in March of 2014, Jinan

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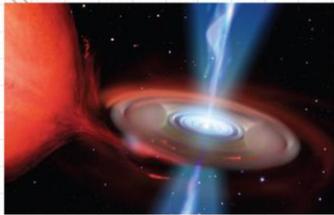
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System Relativity
系统相对论



本书以物质量子化假设为前提，提出了系统相对论的一元二态物质观。对于当前各物理理论分支之间存在的深刻矛盾，作者从系统相对论的视角进行了初步探讨，并尝试将各物理理论分支纳入到系统相对论的理论框架内。尤其对广义相对论和量子理论，作者在探讨二者存在深刻矛盾的基础上，提出了实现二者统一的思想和方法。

本书是对物质原理的一种全新的探索，可以作为哲学和基础物理研究人员的参考书，也可供物理爱好者和相关人员参阅。



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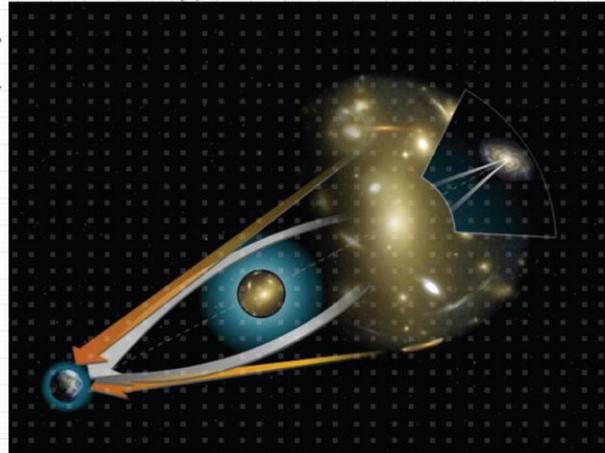
系统相对论

刘泰祥◎著

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Liu Taixiang was born in Laiwu City of Shandong Province, China. After graduation from university in 1992, he works in automation engineering technology for Laiwu Steel Group. And in 2002 the professional title of Senior Engineer was conferred on him. Due to a passion for physics, he often studies and ponders over the relevant knowledge and issues about theoretical physics. In November 2010 he published *The Theory of System Relativity* (1st edition). In the following two years, he fined down this theory greatly. In December 2012, the second edition of *The Theory of System Relativity* was published.



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THE THEORY OF SYSTEM RELATIVITY

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