

(中英文对照)

相似论并演三论

相似论
Theory of
Similarity

陈永生 著

Chen Yongsheng

并
演

狭义相对论
实质辨析
Discussion on the
Special Theory
of Relativity

三 论

粒子
二象性论
On Particle Duality

推测
物质结构
Deduction of
Matter Structure

32
53

石油工业出版社
Petroleum Industry Press

相似论并演三论

陈永生 著

石油工业出版社

图书在版编目 (CIP) 数据

相似论并演三论/陈永生著.

北京:石油工业出版社,2003.4

ISBN 7-5021-4211-8

I. 相…

II. 陈…

III. 相似理论-研究

IV. N032

中国版本图书馆 CIP 数据核字 (2003) 第 020723 号

石油工业出版社出版

(100011 北京安定门外安华里二区一号楼)

河北省航测院印刷厂排版印刷

新华书店北京发行所发行

*

850×1168 毫米 32 开本 3.25 印张 87 千字 印 1—500

2003 年 4 月北京第 1 版 2003 年 4 月河北第 1 次印刷

ISBN 7-5021-4211-8/N·16

定价: 25.00 元

前 言

在文化大革命中失去自由的日子里，在我有兴趣的学科里只有唯物辩证法有研读的机会，这样我的哲学学识有了飞跃的提高。从哲学的高度回味学过的种种学问，对自然界的相似有了莫大的兴趣。当后来我有机会支配时间时，就整理完成了“相似论”，这已是 20 世纪 70 年代初的事了。在整理“相似论”的过程中，发现“狭义相对论”的光速不变的假设，与“相似论”相悖，为此深入研究了“狭义相对论”，并看出由于“狭义相对论”的误导，时空观、质量观等观点混乱，陷入不可自拔的境地，并出现种种哲学思潮，至今仍在延续。经过对被认为是证明“狭义相对论”的实验的再分析研究，和反复思考，完成了“狭义相对论辨析”一章。

光的二象性早在当学生时，就引起我极大的兴趣，在研究相似论时，发现用相似论的结论重新分析研究这个问题，二象性的普遍性更为突出，但矛盾怎么认识，却没有答案。后来，有两个现象引起了我的注意。首先是天文学上发现了阿连德星（这是一种运行轨道呈波状的恒星，现已发现 50 多颗，天文学家推测认为，这类恒星是具有看不见行星的恒星）；再一个现象，在北京这类多风沙的地区很容易看到，就是风吹沙土满地跑，有不少时候留下的沙土流的轨迹成波浪状，这告诉我们有些沙粒向前运动的轨迹并非是简单的直线，而呈波状。现象的启发，相似论的导向，经过多年研究分析，完成了“粒子二象性论”一章。

在从哲学的角度，研究相似论，狭义相对论，粒子二象

性等基础理论问题时，不得不研究天文学、地质学、物理学……等等各方面的文章，物质结构就是在这种背景上的附属品。如果你感兴趣的话，可以按相似论提出改造金星的设想，为人类扩展生活空间，还有其他许许多多极其大胆的甚至被认为荒谬的设想，当然这话扯远了。

正因为有这样的过程，将这些成果归在一起出版，可能更好些，起了个“相似论并演三论”的书名。这名字也许有人听了会觉得有些怪，但我认为很贴切，就是这么一回事嘛！

陈永生

1996年10月1日

Preface

In the days of the Great Cultural Revolution when I lost my freedom, I had a unique choice to learn the theory of materialist dialects except other subjects I was interested in. This had made a substantial improvement on my philosophy. When I pondered over all sorts of subjects I had learned before from the viewpoint of philosophy, the similarity of the nature greatly aroused my interest. It was later in the early 70's of the 20th century when I could manage time, so I sorted out and finished the theory of similarity. During the process of sorting out the theory of similarity I found that the hypothesis of invariance of light speeds in the theory of special relativity is conflicted with the theory of similarity. For this reason, I made a thorough study in the special theory of relativity and found that the mislead of the special theory of relativity. In the frame, many concepts including time and space, mass etc. are confused to such an extent as to land in an inextricable predicament, which lead to a variety of philosophical thoughts that continue to exist now. After restudying the experiments which had been regarded as proof for the theory of special relativity, I fulfilled the chapter, discussion on the Special Theory of Relativity.

I became very interested in light duality as student. During my research into the theory of similarity, I had tried to answer this problem in terms of the theory of similarity, and found out that the universality of duality is much more confirmed. But there is no solution yet to the contradiction. Afterwards, two phenomena aroused my interests. The first one was the discov-

ery of the Allende planet that has an undulant orbit. Until now have more than fifty ones of the kind had been discovered. Astronomers inferred that such kinds of stars should have other invisible planets round them. Another one sandy is sandy soil blew in all direction by the wind. This is easy to see in Beijing and other places where there are enough mud. Much time the orbit left by sandy soil flow is undulant, which tells us the orbit of some sands moving forward is not in a simple straight line, but undulant line. Inspired by these phenomena and guided with the theory of similarity, after several years' research, I had fulfilled the chapter, On Particle Duality.

When I studied some issues of fundamentals from philosophical angle about the theory of similarity, the theory of special relativity, wave-particle duality etc, I had to read and study a lot of articles from different disciplines, such as astronomy, geology, physics and so on. And the structure of matter was a by-product under such background. According to the theory of similarity you can put forward ideas about modifying the Venus to expand the living space for mankind. There are many other most bold tentative ideas, some of them even regarded as utterly absurd. These words are strayed from the point, however.

Just because of such process, I think it will be better to sum up and sort out these achievements for publication, and name the book "Three co-deduction views on the theory of similarity ". Maybe this name sounds strange, but I believe it's very suitable, because it is the just thing.

Chen Yongsheng

10/1/1996

目 录

| | |
|-------------------------------|--------|
| 第一章 相似论 | (1) |
| 一、“相似”早就引起学者重视 | (3) |
| 二、不同质的运动形式只要是相似运动就有相似的 方程式 | (7) |
| 三、初步结论 | (23) |
| 四、相当参数和相当系数 | (25) |
| 五、以往应用相似论的几个例子 | (27) |
| 第二章 狭义相对论实质辨析 | (35) |
| 一、尺是否一定缩? | (37) |
| 二、钟一定慢吗? | (45) |
| 三、关于运动质量与静止质量问题 | (51) |
| 四、初步结论 | (57) |
| 五、迈克耳逊—莫雷实验的重新分析 | (59) |
| 第三章 粒子二象性论 | (73) |
| 一、光子是有质量的, 而且质量不同 | (75) |
| 二、粒子波动分析与粒子波的特点 | (77) |
| 三、结论 | (83) |
| 第四章 推测物质结构 | (87) |
| 一、原子层次 | (89) |
| 二、恒星层次 | (91) |
| 三、星系层次 | (93) |
| 四、推论 | (93) |

CONTENTS

Chapter 1 Theory of Similarity 2

- 1.1 Similarity Has Brought to Academic Attention for a Long Time 4
- 1.2 The Motion Forms of Different Qualities Have Similar Equations only if They Have Similar Movement 10
- 1.3 Fundamental Conclusion 22
- 1.4 Commensurate Parameters and Commensurate Coefficients 26
- 1.5 Several Examples using the theory of similarity

Chapter 2 Differentiation and Analysis of the Theory of Special Relativity 36

- 2.1 Ruler Must Be Shorten? 38
- 2.2 The Clock Must Be Slow? 44
- 2.3 Problem about Motional Mass and Rest Mass 52
- 2.4 Fundamental Conclusion 58
- 2.5 Reanalysis of Michelson-Morley Experiment 60

Chapter 3 On Particle Duality 72

- 3.1 Photon has mass which is different 72
- 3.2 Analysis on Wave Motion of Particle and Character of Particle Wave 78
- 3.3 Conclusion 84

Chapter 4 Deduction on Structure of Matter 88

- 4.1 Atomic Level 90
- 4.2 Star Level 92
- 4.3 Galaxy Level 94
- 4.4 Conclusion 94

第一章 相似论

当你初生下来，除了会吃奶还什么也不会的时候，就有人议论你，说你多么像谁，等等，已经在给你传递相似信息了。这么普通的一句话，隐含着一门深奥的学问，即生物工程中的遗传基因。到了中学，就学习相似三角形，就会学到一系列相似定理。相似就开始在你的头脑里植根了。在你以后的生活中虽然碰到的相似现象越来越多，但由于科学的发达，分工越来越细，你往往就会学习某一专业，从事某一种行业，由于行业的限制，这种在自然界最常见的、一般的相似现象也就没有引起人们充分的重视了。你也许在工作、生活中有意无意地用到了相似概念，并取得成功，但也没有进一步深入的思索、研究。即使有人深入思索了，但由于历史条件的限制，也没有做出高度概括的结论。

最平常的现象，往往蕴藏着最深刻的道理，我国的先哲老子，认真观察了大自然的变化，说出了千古绝句：“道生一，一生二，二生三，三生万物。”阴阳鱼（即太极）把对立统一的基本法则表现得是那样的形象和维妙维肖。还有像资本主义的细胞——商品交换，这是最常见、最普遍的现象，马克思正是研究了这一最普遍的现象，写出了《资本论》，揭开了资本主义剥削的秘密。相似同样也是大自然中最常见的现象之一，它又隐含着什么样的规律呢？

当我们再仔细地研读一下前人的宝贵遗产时，发现相似这种现象早已为学者们所注意，也早已被自然科学家有意无

Chapter 1 Theory of Similarity

Just as a child just comes to the world, people begin to talk about his or her resemblance, although he or she is unable to do anything but suck his or her mother's breast. There is a profound knowledge hidden behind their talk, about hereditary gene in biological engineering. Going to middle school, he will study similar triangles, and a series of similar theorem. Then the similarity is deep-rooted in his mind. Although there are more and more similar phenomena in his life later on, because science development gives rise to more elaborate division of labor he usually has to study only one specialty and engage in one profession. Just for the professional limit, general similar phenomena deep-rooted in nature haven't been brought to people's full attention. Maybe we achieve success in our work or life by using similarity wittingly or unwittingly, but conduct no further pondering and research. Even someone does it, he or she can not make a sound conclusion due to the restriction of historical condition.

Profound truth is usually contained in the most ordinary phenomenon. After having made serious observations, Lao Zi, a Chinese sage, said, "Dao creates one, one creates two, two creates three, and three creates everything on the earth" "Taiji" displays the fundamental law of the unity of opposite so vividly. Marx and Engels wrote a book 'on the Capital' just after having studied the most common phenomena, exchange of commodities which is the cell of capitalism, and then exposed the explicating secret of capitalism. Similarity is also one of the most common phenomenons in nature. What kind of law does it contain?

意地用来解决各种各样的科学技术问题，不仅如此，当时也引起哲学家的重视，把它作为世界统一性的一个根据。从现代科学爆炸性的发展和边缘学科领域的飞速发展，研究相似这一个命题就成为极其重要的了，它能指导研究者、学者、科学技术人员找到成功的捷径，成为你以较快的速度从本学科向你感兴趣的领域发展的钥匙。

研究物质和运动是哲学的命题，物质由于其结构不同分成不同的层次，不同层次的物质有不同的运动形式，相似就是不同层次的物质不同运动形式之间的关系，这种关系我们归结为相似关系，它既有哲学命题的内涵，又有自然科学的丰富内容，可以认为是哲学与自然科学之间的边缘科学，当今有的分支已发展为一门独立的学科，如仿生学。所以说，相似是一种基础理论，由此出发来看，笔者认为没有统一场论，却有相似场论。

一、“相似”早就引起学者重视

世界上存在着多种多样物质的运动形式，像发光、发声、机构运动等。这些运动形式具有本质上的差异性，正如毛泽东同志说的：“首先是各种物质运动形式中的矛盾，都有特殊性。……这种特殊的矛盾，就构成一事物区别于他事物的特殊的本质。这就是世界上诸种事物所以有千差万别的内在的原因，或者叫做根据。自然界存在着许多的运动形式，机械运动、发声、发光、发热、电流、化分、化合等等都是，所有这些都是物质的运动形式，都互相依存的，又是本质上互相区别的，每一物质的运动形式所具有的特殊的本质为它自己的特殊的矛盾所规定。”

Looking back on the precious legacy of human beings, we will find that similar phenomena have brought to academic attention and been applied to different kinds of scientific and technical problems consciously or unconsciously for a long time. And they also were considered as one ground of world unity by philosophy for a long time. So research into the proposition of similarity is extremely important to the rapid development of modern sciences as well as frontier sciences. It can tell researchers or scholars to find a successful shortcut, or become a key to help people make a detour from their own subjects to fields they are interested in at a fast speed.

To study matter and motion is a philosophical proposition. Matter is composed of different levels according to its different structure. Matters having different levels, different motion forms, it is called it similar relationship, which not only contains the connotation of philosophical proposition, but also has abundant substance of natural science. It could be regarded as the frontier science between philosophy and natural science, one of its branches has become an independent subject e.g., bionics. So we can say the similarity is a basic theory on this point, the author thinks we have no unified field theory but similar field theory.

1.1 Similarity Has Brought to Academic Attention for a Long Time

There are various kinds of motion forms of matter in the universe, such as luminescence, sound production, mechanical movement etc. These motions are distinctive in essence. Just as Mr. Mao Zedong said, "At first all the contradictions in matters having different motion forms have the particularity...The particularity of contradiction constitutes the particular essence which distinct one thing from others. This is the internal factor

这些本质上不同的物质的运动形式，各自都遵循着一定的规律运动着。它们之间有没有联系呢？

几百年前牛顿就已经注意到了这种现象，他说：“在完全不同的领域内而得到同样的微分方程式的这样类似可以举出很多，天空中各星球在太阳吸引力及其本身间吸引力的作用下的运动与波浪中船只摆动之间；或者，在所谓在天体运动员中的岁差与带动船只螺旋桨或发电机所用的多汽缸狄塞耳发动机的扭振动之间，会有什么相同之处吗？其实，如果只写出公式或方程式，而不加以文字说明，那么就不可能分辨出到底是解决哪一个问题，因为方程式是完全相同的。”

后来麦克斯韦不但指出了电运动理论和热传导理论之间存在“相似”现象，而且还指出它们之间性质上的不同。他说：“这些现象间的区别在于物体能够吸收和放出热量，可是在电气方面却不具有对应的性质。”

爱因斯坦和英费尔德在《物理学的进化》中是这样叙述的：“在物理学上往往因为看出了表面互不相关的现象之间有相互一致之点而加以类推，结果竟得到很重要的进展。在这本书中我们也常常看到在某一科学分支上建立和发展起来的概念，后来就成功地应用于其他分支。机械观和场论的发展中有很多这类例子。将解决的未解决的东西联系起来也许可以想到一些新概念来帮助我们解决困难，很肤浅的类推是容易找到的，但实际上不说明任何东西。有些共同的特性却隐藏在外表上的差别的背后，要能发现这些共同点，并在此基础上建立一个新的理论，这才是重要的创造性工作。由德布鲁意和薛定谔在 15 年前创造的所谓‘波动力学’的发展，就是用这种深刻的推理方法而得出极为成功的理论的一个典型例子。”爱因斯坦这几句话说出了，有些共同的特性隐藏

that all matters in the world differ in thousands of ways. Many motional forms exist in nature, such as mechanical movement, luminescence, sound production, giving out heat, electric current, chemical combination and so forth. All of these are motion forms of matters, they are interdependent and differ from each other in essence. The particular nature of motion form of each matter is determined according to its particular contradiction.

These motion forms of matters which are different in nature all act fixed pattern respectively. Are there any relations among them?

Several hundred years ago Newton already noticed these phenomena, he said, "Such similarity that we can obtain the same differential formula in totally different field is numerously listed between each celestial body's movement affected by solar attraction and itself attraction in the sky and the rock of boat in the wave; or do have any similarity between the so-called precession of the equinoxes in the motion of celestial body and the twist and vibration of multicylinder diesel-engine which drives the propeller of boat generator. In fact, we can hardly tell which problem they can solve, if only write out formula without any literal explanation, because they are totally alike.

Afterwards Maxwell not only pointed out phenomenon of similarity between the theory of Electrical movement and the theory of heat conduction, but also pointed out their different in nature. He said, "The differences of these phenomena lie in that substances can absorb and give off heat, but no corresponding properties in electrical aspect."

In their book entitled to *Evolution of Physics*, Einstein and Infeld wrote, "We often see the identical point among those superficially un-interrelating phenomena in physics, and then analogize and unexpectedly made very important development. "In

在表面上差异的背后，这些共同的特性是什么呢？这就是本文试图论述的东西——相似。

“相似”现象不仅被自然科学家注意，而且恩格斯、列宁也给予充分的注意，列宁说：“自然界的统一性显示在关于各种现象的领域的微分方程式的‘惊人的类似’中，用同一方程式可以解决流体动力学的问题，也可以表达势论。流体的漩涡理论和气合格的摩擦理论显示出同电磁理论有‘惊人的类似’。”

列兹尼亚科在 20 世纪 50 年代末发表了《相似方法》一书，他认为“任何物理相似在形式上都可以化为几何相似。”提出了空间相似、时间相似、运动相似、动力相似和温度相似，这 5 个方面是研究物理相似的基本方面，确定了物理模拟的基础。他研究的相似是具有相同质的运动状态的运动之间的相似。我们研究的相似比起该书具有更广泛得多的范围和内涵。

从自然科学家到哲学家都注意到了相似现象，说明不同质运动之间的相似不是偶然的巧合，而在其内在的联系。

二、不同质的运动形式只要是相似运动就有相似的方程式

所谓相似运动指的是不同质的运动具相似的运动过程，为了找出这种“相似”的内在联系，按毛泽东同志说的“普遍性即存在于特殊性之中”的思维方法，选最基本实验规律进行分析。这些规律是大量试验的结果，是基本的关系式，是在独立的条件下做出来的成果。故从中看出“相似”关系的原因，应该是有代表性的。

this book we also often see that definitions set up and developed upon one scientific branch are successfully applied to other branches. There are a lot of examples in the development of mechanical sense. We may think of some new concepts to solve problem by means of relative problems having resolved and unresolved. (It is easy to find superficial inference that in fact cannot explain anything. Some common characteristics which we cannot discover are hidden in different appearances). And on the basis of these, we can build a new theory, which is just the importantly creative work. A typical example for achieving a great success through this profound deduction was the development of so-called wave-motion dynamics, set up by de Broglie and Schrodinger fifteen years ago. What Einstein said showed that there are some common characteristics? The theory of similarity is the just thing what this book tries to expound.

Phenomena of similarity are paid attention to not only by natural scientists, but also by Engels and Lelin. Lelin said, "The unity of natural world shows amazing similarity in differential equations as to various phenomena fields. We can solve problems of hydro-kinetics and also can express potential theory by using the same equation. The theory of fluid vortex and the theory of gaseous fiction display the amazing similarity to the theory of electromagnetism. A.B. Lezniyak published *Method of Similarity* in the late 50's of the 20th century, he deemed, "Any physical similarity can be turned into geometric similarity in form, "He advanced five aspects such as spatial similarity, time similarity, motional similarity, dynamic similarity and temperature similarity, which were basic aspects of physical similarity, and determined the basis of physical simulation. The similarity he had studied is the one among movements having the same