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Challenging Problem to Modern Physics

- about study of qigong and paranormal phenomena

Qingli Li

China Institute of Atomic Energy, Beijing

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Abstract:

At present, most of qigong (Chinese yoga) and related paranormal phenomena can not be explained by modern physics. It is necessary to create a new branch of physics that would incorporate "thinking field" and would deduce principles of motion in such a field and its interaction with matter.

Clearly we are facing the arrival of a new scientific revolution.

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In November 1987 the author participated in an experiment during which, by the emission of qi, a qigong master has altered the taste of a cup of liquor. This change has yet to be confirmed by a gas chromatogram analysis. Yan Xin, one of the most famous Chinese qigong masters, has cooperated with scientists in the famous experiment. By emitting qi from the distance of 2000 km, he has influenced chemical reactions and has changed molecular structure of the samples such as tap water, saline and glucose solutions, and other biological media. After the emission of qi, laser Raman spectra showed big changes indicating alterations in the molecular structure [2]. One may conclude that, at that time, the Chinese research of qigong has reached the molecular level.

The most puzzling among various paranormal phenomena is psychokinesis (PK). PK shows not only that people who can induce it have paranormal abilities but, what is even more important, PK reveals a paranormal mode of interaction with and motion of the matter.

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1. Mr.Zhang extracted through the walls of a tightly closed bottle many medical tablets without any visible damage neither to the bottle, nor to the tablets. The tablets were in a clear glass bottle with a tight rubber plug. Part of the plug consisted of a fold-out rubber skirt providing a firm and difficult to remove lid.

2. Mr. Zhang transferred some candies and fresh flowers into a sealed envelope without opening it.

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A philosopher said: "Miracles are not against the nature, they are only against our understanding of the nature." Obviously, these miraculous phenomena raise challenging problems to modern physics. A series of questions has to be answered by modern physics.

In the history of modern physics it happened more than once that a new phenomenon that could not have been explained in terms of the existing knowledge, became a starting point of a new discovery leading to important modifications of physics theories. The challenges to the classical physics through the discoveries of cathode rays, X-rays, radioactivity, and neutron produced the theory of relativity and quantum mechanics. Those new discoveries forced people to thoroughly change their point of view concerning the understanding of matter, rules of motion, time-space concept, and causality. It seems that qigong and paranormal phenomena have pushed physics into such a new stage of development. Therefore we may expect the arrival of a new scientific revolution.

Among the many questions that the physicist have to answer are the following:

1. Is qi, as emitted by qigong masters, a new type of radiation? What is the nature of it? Is it a beam of particles or an electromagnetic wave? Does it have charge, or not? Can it be shielded by various materials, or not? Although some measurements show that qi has some infrared content, this content can not account for all the effects attributed to qi. In particular, it is impossible to imagine transportation and collimation of infrared radiation over a distance of several thousand kilometers.

2. What are the principles of interaction between various materials and qi emitted by a qigong master?

3. What are the limits on qi's impact on matter? Namely, since qi, emitted by a qigong master, can influence chemical reactions and molecular structure of matter, can it also have an impact on nuclear reactions and nuclear structure? This is an especially interesting question for a nuclear physicist.

4. Some individuals, like Mr. Zhang, can make objects

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penetrates [illegible] changes to the bottle and the objects?

5. What are the properties of PK force? What are the principles of motion and interaction of matter under the PK force?

It seams that under a strong thinking field the motion and interaction of matter obey completely new principles, unexplainable by modern physics and not yet studied at all. It is necessary to form a new physics system that would include thinking field. When thinking field diminishes, present descriptions by modern physics are correct - just like relativistic kinematic becomes classical when the speed of motion is much smaller than the speed of light.

To solve the problems that were mentioned above, physicists should join somatic scientists and other experts and initiate a coordinated, comprehensive research that would utilize the advanced equipment and techniques of modern physics; including nuclear techniques. Measurements with various detectors should be made to determine: the attributes of qi emitted by qigong masters, physical parameters of paranormal abilities, substance attributes of thinking field, and principles of interaction between such field and the matter.

In the search for a theoretical explanation of qigong and paranormal phenomena, D. Bohm's theory has been brought back to attention. D. Bohm worked in the 1950s at Princeton University, Physics Department. He thought that the statistical aspect of quantum theory was a result of the not yet revealed, hidden variables. Once the hidden variables are found, the outcome of each experiment can be exactly determined, not just the probabilities of various results. D. Bohm also pointed out that the uncertainty principle in quantum theory describes just the surface phenomena, whereas the molecules, atoms, and elementary particles all show temporal appearance in the universe. These appearances are not necessarily stationary. They interchange. The hidden variables play a role in a deeper layer of quantum theory, in a super-microscopic world [10^{-34} cm]. In this super-microscopic world hidden variables have a self-organizing feature that makes one kind of particles become an other, of a different structure. Therefore, restoring of a torn card or causing the penetration of an obstacle may, as some suggest, be possible through the use of the self-organizing features of the super microscopic world.

An other explanation relates to the hypothesis that ordinary people recognize only three dimensions whereas the space has more than three dimensions. People with paranormal abilities recognize and use the other dimensions while performing their surprising acts such as wall penetration.

A well known Chinese scientist - Dr. Qian Xuesen -

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considered a human body as a huge system. When combined with the environment, it would form a super huge system. According to statistical theory, every complex huge system has several relatively stable states. Under certain conditions a transition from one state into an other may occur. Also a human body has more than one stable state. According to the ability state theory, human body may transform, under some internal or external impulse, into the other state.

This situation can probably be well illustrated using nuclear excitation model. For example, the ground state of the even-even nuclei has spin zero and positive parity $J^{\pi} = 0^{+}$ but, in the excited state, the spin and parity may change, eg. into 3^{-} or 2^{+}. Although it is still the same nucleus its properties are different in different excitation states. Human body has similar properties. If it is in a certain excited state (namely in the qigong state) its properties are different from that of the ground state (normal condition). Apparently, modern medicine, physiology, or somatic science study the properties of human body just in the ground state. Therefore it is not surprising that such unusual properties of human body like high enduring abilities to pressure, temperature, voltage, and other paranormal features attributed to the qigong state and to the other paranormal states can not be explained by these sciences. Since the abilities of various qigong masters and individuals with paranormal skills differ, it indicates that they reach different excited states.

Qi emitted by qigong masters can induce human body into an excited state. Also other external causes may bring about similar effect. It has been reported in the Soviet Union that after an illness a patient has gained clairvoyance skills. Sometimes transformation into an excited state can be induced internally (so called self excitation) through meditation and qigong practice.

Just as the nuclear levels and spectra have been studied, in a similar fashion we should systematically collect the spectra of human abilities and determine the characteristic parameters of these states and conditions that allow for transitions between them. Relying on somatic research, the basic reasons for the occurrence of paranormal abilities can be understood. One can imagine that next below the first excited state there are some semi-stable states. People excited into those semi-stable states show enhanced, although not yet paranormal, abilities. In this way one can account for some common phenomena like the well known fact that in emergency people get quick wits, or that sleepwalkers, while in trance, are capable of actions beyond their normal achievements, or that some mental patients show strength much above the average. The mentioned phenomena show that a change in the mental condition prompts the body into some semi-stable state with a set of characteristics (abilities) different from normal.

If the ability state theory of human body is correct, it can be predicted that efficient ways of exciting human body into the

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CHALLENGING PROBLEM TO MODERN PHYSICS ——ABOUT STUDY OF PHENOMENA OF QIGONG AND SUPERFUNCTION OF HUMAN BODY

LI QINGLI

(*Institute of Atomic Energy, P. O. Box 275, Beijing*)

ABSTRACT

At present, a lot of phenomena of Qingong (breathing exercises) and superfunction of human body can not be explained in terms of modern physics theory. It is necessary to form a new physics system including a thinking field and to conclude principles of motion and interaction of matter under the thinking field.

It means that a new scientific revolution is coming.

Key words Qigong, Breathing exercises, Superfunction of human body, Thinking field.

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对现代物理学的挑战

——谈气功、人体特异功能研究

寻庆利
（中国原子能科学研究院，北京）

近年来人体科学的研究表明，当人体处在气功和人体特异功能这二个功能态时，人体可以具有许多非凡的能力，同时人们可以观测到许多神奇的现象。原北京有线电厂职工赵学忠在气功诱发了特异功能之后，既具有透视功能又具有能感觉遗留信息的特异功能，被人们称为神医就是非常突出的一例[1]。

1987年11月，作者曾观看了气功师发放外气使白酒变味的实验。对此类实验气相色谱分析不久将给出定量结果。

有实验表明，气功师在千里之外发功，发放的外气能影响化学反应，改变物质的分子结构。该实验是用普通自来水、生理盐水、葡萄糖水、麦迪霉素的物质样品进行的。经发功处理后，能精确表明分子结构情况的激光拉曼图谱上发生了明显变化。这一研究成果表明，当今气功研究工作已跨入分子水平的新阶段[2]。

在各种特异功能中，意念致动现象最令人感到惊奇。由于这些现象不仅显示了特异功能者非凡的能力，重要的是揭示了一些特异的物质运动方式和特异的物质相互作用现象。

1988年元月7日作者一行八人*在北京中国航天医学工程研究所亲眼目睹了张××的意念致动表演：

1．特异功能者利用意念将我们事先装在透明玻璃瓶内的药片穿过瓶壁移出瓶外，瓶壁和药片均未破碎。

2．特异功能者利用意念分别将水果糖块和鲜花移入事先封好的信封内。

3．特异功能者将写在信封上的字移入事先封好的信封内的信纸上，并通过意念穿过信封将信纸撕出二块。经查看信封完整无缺，而打开信封查看，撕出的二块信纸与原信纸破碎处正好拟合。

4．特异功能者通过意念损坏了正在计时的手表。

该研究所一位负责人向我们证实，近年来上千次的实验表明上述现象完全可以重复，是可以用录像等现代仪器记录的。这些神奇的现象不是魔术，不是迷信，而是科学实验事实。人体科学工作者多年的工作已经总结了一些诱发特异功能的规律，目前已不是个别人才具有这种功能了。

一位哲学家曾经说过："神奇并不违反自然，它违反的只是我们对自然的了解"。显然，上述的许多神奇现象对现代物理学的成果提出了挑战，一系列问题有待于现代物理学给予回答。

在近代物理学发展史上，人们不止一次地看到，那些用已有的物理学知识解释不了的新现象往往孕育着新的发现或物理学理论的重大革新。从阴极射线、中子、X射线、中子和放射性的发现过渡到相对论和量子力学对经典物理学的革命[illegible]

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* 杨柳、关迎令、杜学仁、周求位、陈永发、李贵和、周淑俊。

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现和理论上的重大革新使人们对新的物质、物质运动规律、时空观和因果律的认识产生了彻底的变化。目前，气功、人体特异功能现象似乎又将物理学推进到了这样一个发展阶段。从这个意义上讲，我们目前正处在一场新的科学革命的前夜。

目前物理学工作者面临要回答的问题很多。诸如：1．气功师发放的外气是否是一种新的射线？这种射线究竟是一种什么物质，是粒子流还是电磁波？它究竟带电不带电，在电磁场中是否偏转？各种屏蔽材料对它能不能屏蔽？虽然有些实验表明，这种外气有红外辐射的成份，但仅红外辐射远没有那么多效应，且千里之外的传输和准直是难以想象的。2．气功师发放的外气与各种物质的相互作用的规律如何？3．外气影响物质结构的限度如何？既然实验表明气功师发放的外气能影响化学反应，能影响分子结构，那么能否影响原子核反应、原子核结构？这是核物理工作者特别感兴趣的问题。4．特异功能者利用意念使药片无损地穿出瓶壁，实现了经典力学范围内的势垒贯穿。意念致动后的物体，如药片的组成成份有什么改变？瓶壁的物质结构是否有变化？ 5．显然施加在药片上的力与普通的力不同。特异力引起物体运动的规律如何？在意念影响下物质的相互作用的规律如何？

看来在强的意念场的作用下，物体运动和物质相互作用完全遵循另外的规律。而这些在现代物理学已有的成果中尚未进行充分的研究和总结。因而值得考虑的是新的物理学体系应当包括意念场在内。在意念场趋于零的情况下恢复到我们目前物理学描述的内容。这正如相对论理论在物体运动速度远小于光速时恢复到经典力学的情况相似。

要解决上述一系列问题，物理学工作者要配合人体科学和其他学科进行综合研究。要运用现代物理学的先进技术和仪器设备，包括利用原子核物理和核技术来测量气功师发放的外气在各种仪器上的效应。从而确定它的物质属性，确定特异功能的物理参量，确定意念场的物质属性及在该场影响下，物质的相互作用规律。

在气功、人体特异功能现象的理论解释方面，人们注意到早年玻姆(D.Bohm)提出的"隐变数"(Hidden variables) 理论。玻姆50年代曾在美国普林斯顿大学物理系工作。他认为目前量子力学理论之所以是一个统计理论，是因为尚存在着未发现的"隐变数"的缘故。如果能找出这些"隐变数"就可以准确地决定对微观现象每一次测量的结果，而不是只决定各种可能出现结果的几率。玻姆进一步指出：量子力学里的测不准原理，指的是表面现象，而物质的分子、原子、基本粒子都是整个宇宙系统中暂时的表现。这些东西不是真的，是变化的。而"隐变数"在量子力学的更深的层次上起作用。这是一个尺度为 10^{-34}cm 的超微观世界。"隐变量"在超微观世界中有自组织现象，一些粒子可以变成各式各样的新粒子，形成另外的组织。特异功能的复原、穿壁功能有可能是利用超微观世界的自组织现象的能力。

目前还有人认为普通人只能感受三维空间，而实际上存在着四维甚至多维空间。而特异功能就是可以感受四维或多维空间的能力。一切奇特的复原、穿壁等现象都来自于这种空间不同维数的转换。

我国著名科学家钱学森认为：人体是个巨系统，它和环境结合则是个超巨系统。根据系统学理论，每个复杂的巨系统都有多个相对稳定的态。这些态在一定条件下可以相互转化。人体功能也不止一个态，通过外因、内因的影响，人体可以从一个功能态转化到另一个功能态。这就是功能态理论。这个情况我们是否可以与原子核能级相类比。如偶偶核的基态能级自旋宇称 $J^{\pi}=0^{+}$，[illegible]，例如变为 3^{-} 或 2^{+}，

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虽然原子核还是这个原子核，但在不同激发态时核的性质可以完全不同。人体也是一样，处于某个激发态即功能态后，人体的性质和能力与普通人处在基态完全不同。而现代医学、生理学和人体科学基本上是总结了人体处于基态的性质。因而对处在气功和特异功能态时人体所能承受的压力、温度、电压的能力及人体的其他本领就显得惊人。不同气功师的本领不一样，特异功能者的能力也各不相同，说明他们处在不同的激发态上。能力强的人是处在更高的激发态上。处在激发态可以由气功来激发，也可以由其他外因诱发。在苏联有这样的实例，有人得了一场重病之后，突然有了透视功能。内因激发就是靠意念自身调节自己处在激发态上，这就是自激发。像研究原子核的能级图一样，如果能系统地研究出功能态的谱，及每个功能态的特征参数和功能态之间的转化条件，就可以从人体科学上弄清气功和人体特异功能的基本道理。我们是否还可以想象在第一激发态下还存在着某些亚稳态。暂时处在这些亚稳态的人，功能也比一般人略强但还算不上特异，这样来解释日常生活中所谓"急中生智"，以及有些精神病人力气可以比正常人大许多，一些夜游症者在夜间非清醒状态下能作出许多正常人难以作出的惊险动作等现象。这说明人的精神处在特殊的状态导致人体处在某些功能亚稳态上，这直接影响人体的功能与一般情况下的不同。

现在非常有能力的气功师和有强特异功能的人都是天各一方，由不同单位各自独立地进行着有关研究。如果能够设计有关实验方案，让他们互相激发对方，研究他们的相互作用，使他们分别处在更高的功能态，这是非常有意义的工作。如果功能态理论是正确的，我们可以预言，人们可以想出适当的激发方式，使人体处在更高的功能态。这样更加神奇的人体特异功能和气功现象将会展现在人们面前。

气功、人体特异功能研究中观测到的新现象是给哲学研究也提出了许多实践的问题，产生了深远的影响。实践是检验真理的唯一标准，也是发展真理的唯一途径。辩证唯物主义从来不主张把精神和物质机械地分割开，人为地把它们对立起来。辩证唯物主义从来认为在一定条件下物质可以变成精神，精神也可以变成物质。应当说这个论点在气功、人体特异功能研究中得到了进一步的证实。实际上精神是物质脑活动的产物，是脑功能的一种形式，这就是物质变精神。反过来，由于气功师的精神即意念活动又产生了外气而发放出来，这就是精神变物质。气也是物质，只不过这种物质的性质有待于人们进一步认识罢了。因而气功、人体特异功能现象并没有违反唯物辩证法。恰恰证实了唯物辩证法的论点，并提供了新的生动的实例。

气功作为我国古代科学遗产被发掘和发展对提高中华民族的素质有战略意义。我国地大物博，人杰济济，特异功能者在数量和能力上在世界上都占有优势。我国在这一新兴学科研究领域中处于领先地位是有条件的。气功、人体特异功能研究是一门边缘性学科，需要人体科学、生理学、物理学、化学等许多学科研究人员大力协同才能更好地推动该学科的发展。我们相信，随着该学科的深入研究，一场新的科学革命即将到来。它将对整个社会和人类进步产生难以估量的影响。

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