

中国科学院

关于科学理念的宣言 关于加强科研行为规范建设的意见



中国科学院

关于科学理念的宣言 关于加强科研行为规范建设的意见



科学出版社

北京

内 容 简 介

本书从科学的价值、科学的精神、科学的道德准则和科学的社会责任四个方面对科学理念作了高度的理论概括,并就加强科研行为规范建设对中国科学院院部机关和院属机构工作、学习的所有人员明确提出了科研行为的基本准则,倡议科技界共同践行正确的科学理念,承担起科学的社会责任,努力创造和维护风清气清、求真求实、严谨严肃、和谐融洽的学术环境,为建设创新型国家、构建社会主义和谐社会做出无愧于历史的贡献。

图书在版编目(CIP)数据

中国科学院关于科学理念的宣言、关于加强科研行为规范建设的意见/
中国科学院编. —北京:科学出版社, 2007

ISBN 978-7-03-020313-7

I. 中… II. 中… III. 中国科学院—工作人员—修养 IV. G322.21

中国版本图书馆 CIP 数据核字 (2007) 第 176319 号

责任编辑:胡升华 侯俊琳 郭勇斌 / 责任校对:曾 茹

责任印制:钱玉芬 / 封面设计:文思莱

科学出版社 出版

北京东黄城根北街 16 号

邮政编码:100717

<http://www.sciencep.com>

双青印刷厂印刷

科学出版社发行 各地新华书店经销

*

2007 年 12 月第 一 版 开本: A5 (880 × 1230)

2007 年 12 月第一次印刷 印张: 3/4

印数: 1—13 000 字数: 15 000

定价: 8.00 元

(如有印装质量问题, 我社负责调换〈双青〉)

目 录

关于科学理念的宣言	1
Statements on the Notion of Science	6
关于加强科研行为规范建设的意见	14

关于科学理念的宣言

中国科学院 中国科学院学部主席团

2007 年 2 月

科学及以其为基础的技术，在不断揭示客观世界和人类自身规律的同时，极大地提高了社会生产力，改变了人类的生产和生活方式，同时也发掘了人类的理性力量，带来了认识论和方法论的变革，形成了科学世界观，创造了科学精神、科学道德与科学伦理等丰富的先进文化，不断升华人类的精神境界。

关于科学的讨论一向是科技界乃至社会各界关注的焦点，自 20 世纪以来，更在世界范围内广泛展开并持续升温。它源于对科学自身及科学与自然和社会系统相互关系的进一步思考，也是飞速发展的科学技术与人类的生存发展和多元文化相互作用的反映。科学技术在为人类创造巨大物质和精神财富的同时，也可能给社会带来负面影响，并挑战人类社会长期形成的社会伦理。人们往往从科学的物质成就上去理解科学，而忽视了科学的文化内涵及社会价值。在科技界也不同程度地存在着科学精神淡漠、行为失范和社会责任感缺失等令人遗憾的现象。

营造和谐的学术生态，需要制度规范，更需要端正科学理念。为引导广大科技人员树立正确的科学价值观，弘扬科学精神，恪守科学伦理和道德准则，履行社会责任，作为我国自然科学最高学术机构、国家科学技术方面最高咨询机构、自然科学和高技术综合研究发展中心，我院特向全社会宣示关于科学的理念。

一、科学的价值

科学是人类共同财富，科学服务于人类福祉。科学共同体把追求真理、造福人类作为共同的价值追求，致力于促进人的自由发展和人与自然的和谐，体现了科学的人文关怀和社会关怀。这不仅为科学赢得了社会声誉，而且也促进了科学自身的进步。在科学研究职业化、社会化的今天，更应该严格恪守与忠实奉行这种科学的价值观。

20 世纪以来，科学研究与国家目标紧密联系，已经成为保证国家根本利益，提升国际竞争力的战略要求。在经济全球化和知识经济时代，科学是一个国家发展的重要知识基础，是综合国力的重要组成部分，是引领经济社会未来发展的主导力量。从科学救国到科教兴国，依靠科学和民主实现中华民族的伟大复兴，是百余年来中国志士仁人的不懈追求。在我们这个正在和平发展中的国家，以创新为民为宗旨，以科教兴国为己任，是中国科技界共同的责任和使命，也是我院全体同仁科技价值观的重要核心与共识。

二、科学的精神

科学是物质与精神的统一，科学因其精神而更加强大。科学精神是人类文明中最宝贵的部分之一，源于人类的求知、求真精神和理性、实证的传统，并随着科学实践不断发展，内涵也更加丰富。历史上，科学精神曾经引导人类摆脱愚昧、迷信和教条。在科学的物质成就充分彰显的今天，科学精神更具有广泛的社会文化价值，并已经成为全社会的共同精神财富，照耀着人类前行的道路，因此，倡导和弘扬科学精神更显重要。

科学精神是对真理的追求。不懈追求真理和捍卫真理是科

学的本质。科学精神体现为继承与怀疑批判的态度，科学尊重已有认识，同时崇尚理性质疑，要求随时准备否定那些看似天经地义实则囿于认识局限的断言，接受那些看似离经叛道实则蕴含科学内涵的观点，不承认有任何亘古不变的教条，认为科学有永无止境的前沿。

科学精神是对创新的尊重。创新是科学的灵魂。科学尊重首创和优先权，鼓励发现和创造新的知识，鼓励知识的创造性应用。创新需要学术自由，需要宽容失败，需要坚持在真理面前人人平等，需要有创新的勇气和自信心。

科学精神体现为严谨缜密的方法。每一个论断都必须经过严密的逻辑论证和客观验证才能被科学共同体最终承认。任何人的研究工作都应无一例外地接受严密的审查，直至对它所有的异议和抗辩得以澄清，并继续经受检验。

科学精神体现为一种普遍性原则。科学作为一个知识体系具有普遍性。科学的大门应对任何人开放，而不分种族、性别、国籍和信仰。科学研究遵循普遍适用的检验标准，要求对任何人所做出的研究、陈述、见解进行实证和逻辑的衡量。

三、科学的道德准则

科学研究是创造性的人类活动，只有建立在严格道德标准之上，在一个和谐的环境中才能健康发展。在长期的科学实践中，科学所拥有的博大精深的文化和制度传统，形成了科学的自我净化机制和道德准则。当前，通过科学不端行为获取声望、职位和资源等方面的问题日趋严重，加强科学道德规范建设，保证科学的学术信誉，维护科学的社会声誉，已成为当前我国科技界的重要任务。

科学道德准则包括：

诚实守信。诚实守信是保障知识可靠性的前提条件和基础，从事科学职业的人不能容忍任何不诚实的行为。科技工作者在项目设计、数据资料采集分析、科研成果公布以及在求职、评审等方面，必须实事求是；对研究成果中的错误和失误，应及时以适当的方式予以公开和承认；在评议评价他人贡献时，必须坚持客观标准，避免主观随意。

信任与质疑。信任与质疑源于科学的积累性和进步性。信任原则以他人用恰当手段谋求真实知识为假定，把科学研究中的错误归之于寻找真理过程的困难和曲折。质疑原则要求科学家始终保持对科研中可能出现错误的警惕，不排除科学不端行为的可能性。

相互尊重。相互尊重是科学共同体和谐发展的基础。相互尊重强调尊重他人的著作权，通过引证承认和尊重他人的研究成果和优先权；尊重他人对自己科研假说的证实和辩驳，对他人的质疑采取开诚布公和不偏不倚的态度；要求合作者之间承担彼此尊重的义务，尊重合作者的能力、贡献和价值取向。

公开性。公开性一直为科学共同体所强调与践行。传统上公开性强调只有公开了的发现在科学上才被承认和具有效力。在强调知识产权保护的今天，科学界强调维护公开性，旨在推动和促进全人类共享公共知识产品。

四、科学的社会责任

当代科学技术渗透并影响人类社会生活的方方面面。当人们对科学寄予更大期望时，也就意味着科学家承担着更大的社会责任。

鉴于当代科学技术的试验场所和应用对象牵涉到整个自然与社会系统，新发现和新技术的社会化结果又往往存在着不确定性，而且可能正在把人类和自然带入一个不可逆的发展过程，直接影响人类自身以及社会和生态伦理，要求科学工作者必须更加自觉地遵守人类社会和生态的基本伦理，珍惜与尊重自然和生命，尊重人的价值和尊严，同时为构建和发展适应时代特征的科学伦理做出贡献。

鉴于现代科学技术存在正负两方面的影响，并且具有高度专业化和职业化的特点，要求科学工作者更加自觉地规避科学技术的负面影响，承担起对科学技术后果评估的责任，包括：对自己工作的一切可能后果进行检验和评估；一旦发现弊端或危险，应改变甚至中断自己的工作；如果不能独自做出抉择，应暂缓或中止相关研究，及时向社会报警。

鉴于现代科学的发展引领着经济社会发展的未来，要求科学工作者必须具有强烈的历史使命感和社会责任感，珍惜自己的职业荣誉，避免把科学知识凌驾其他知识之上，避免科学知识的不恰当运用，避免科技资源的浪费和滥用。要求科学工作者应当从社会、伦理和法律的层面规范科学行为，并努力为公众全面、正确地理解科学做出贡献。

在变革、创新与发展的时代，在中华民族实现伟大复兴的历史进程中，必须充分发挥科学的力量。这种力量，既来自科学和技术作为第一生产力的物质力量，也来自科学理念作为先进文化的精神力量。我院全体员工，愿意并倡议科技界广大同仁共同践行正确的科学理念，承担起科学的社会责任，为建设创新型国家、构建社会主义和谐社会做出无愧于历史的贡献。

Statements on the Notion of Science

**The Chinese Academy of Sciences
Presidium of the CAS Academic Divisions**

Feb., 2007

Science, as the basis of technology, constantly reveals the laws of the natural world and of humanity itself. It has greatly improved social productivity, changed the mode of production and transformed our way of life. At the same time, it has unearthed the rational power of human beings, brought about changes in epistemology and methodology, and formed a scientific worldview. By creating rich, advanced cultures embracing a scientific spirit, morals and ethics, it has continuously upgraded the realm of the human spirit.

The debate on science has been the focus of attention of the scientific community as well as society as a whole. Since the twentieth century, this has been carried on worldwide and continues to gain momentum. This debate stems from our deeper pondering on science itself and the interrelationship between science and natural and social systems; and it reflects the interaction between rapidly developing scientific technology and the development and survival of the diverse cultures of mankind. In the process of creating immense material and spiritual wealth, science and technology may also result in negative impacts on society and profoundly challenge long-standing social principles. People have a tendency to base their un-

derstanding of science on its material achievements while overlooking its cultural implications and social values. Some unfortunate behavior exists within the scientific community, characterized, at different times, by indifference to the scientific spirit, misconduct, and a lack of social responsibility.

Creation of a harmonious academic environment requires regulatory frameworks, and more importantly, a correct notion of science. The Chinese Academy of Sciences is hereby making a public statement on the notion of science to guide the scientific and technical community in forming a correct scientific value system, to promote and develop a scientific spirit, to abide by scientific ethics and moral standards, and to fulfill our social responsibility.

1. The value of science

Science is a shared asset of humankind and serves its benefit. The scientific community views the pursuit of truth and human well-being as its common goal. It dedicates itself to promoting the unrestricted development of humankind and its harmony with nature. Science concerns itself with humanity and society. This has not only enhanced the social reputation of science, but has also accelerated the progress of science itself. In today's world where scientific research has been vocationalized and socialized, there is even more reason to adhere to and faithfully practice such a scientific value system.

Since the twentieth century, scientific research has been closely connected with national goals and has become a strategic requirement for ensuring a nation's fundamental interests and strengthening

its international competitiveness. In this age of economic globalization and knowledge-based economy, science is an important knowledge base for the development of a nation and an important component of its overall national strength. It has become the dominating force to lead future economic and social development.

Relying on science and democracy to realize the revival of the nation has been the unremitting pursuit of the Chinese people for over one hundred years. From saving the nation through science to revitalizing the nation through science and education, we have been making clear our belief in science and the values we stand for. In our peacefully and rapidly developing country, it is the common responsibility and mission of the scientific community in general, and the core value and collective understanding of the entire staff of the Chinese Academy of Sciences in particular, to commit to the principle of innovation for the people and to take on this task of revitalizing the nation through science and education.

2. The spirit of science

Science is a unity of matter and spirit, and becomes more powerful because of its spirit. The scientific spirit is one of the most valuable components of human civilization, with its origins in the human pursuit of knowledge and truth as well as the traditions of rationalism and positivism. It is further enriched by the continuous development of scientific practice. In history, the scientific spirit guided people in eradicating ignorance, superstition and dogmatism. Today, with the material achievements of science widely seen, the scientific spirit has a more extensive social and cultural

value and has become the common and valued heritage of the entire society, and a guiding light for the path of human development. Therefore, advocating and promoting the scientific spirit are becoming ever more important.

The scientific spirit involves the quest for truth. Unremittingly pursuing and safeguarding truth are integral to science. Scientific spirit is reflected in the approaches of inheriting, questioning and criticizing. Science respects existing knowledge while advocating rational questioning. It requires us to be always ready to deny those claims that seem to be perfectly justified yet are actually based on limited understanding; to accept those views that seem to be against orthodoxies yet are actually possessing scientific truth; to refuse to allow that there are eternally unchanged doctrines, and to believe that science has limitless frontiers.

The scientific spirit involves respect for innovation. Innovation is the soul of science. Science respects originality and priority, encourages the discovery and creation of new knowledge, and promotes the creative application of knowledge. Innovation requires academic freedom and toleration of failure; adherence to the principle of shared equality in front of truth; and courage and confidence.

The scientific spirit is reflected in the use of rigorous and meticulous methodologies. Each inference must be subject to strict logical reasoning and objective testing before eventual acceptance by the scientific community. Anyone's research work should be subject to rigorous reviews without exception until all objections and disagreements are clarified, and should continue to be subject to subse-

quent testing.

The scientific spirit takes the form of a universal principle. Science as a knowledge system is universal in nature. The door of science should be open to all people regardless of their race, gender, nationality and religion. Scientific research should follow generally applicable standards of review, with anyone's research, statements, opinions and views subject to practical and logical tests.

3. The moral standards of science

Scientific research is a creative human activity. Its healthy development can only be achieved on the basis of strict moral standards and in a harmonious environment. In its long history of practice, the grand cultural and institutional tradition of science has helped to form its self-assessment mechanisms and its moral standards. Presently, the problems associated with falsely obtaining reputation, position and resources have become increasingly severe. Strengthening the development of scientific moral standards, ensuring the academic credibility of science, and safeguarding the social reputation of science have become important tasks for our scientific community.

The moral standards of science include:

- **Honesty and credibility.** Being honest and credible is the prerequisite and foundation for ensuring the reliability of knowledge. Those in scientific professions should not tolerate dishonest behavior. Scientific professionals must be true to facts when designing research programs, collecting and analyzing data, publishing

research findings, job hunting, and conducting scientific reviews. They should openly acknowledge mistakes and oversights in their findings in an appropriate fashion. They must adhere to objective standards and avoid subjectivity and carelessness in evaluating the accomplishments of others.

- **Trust and questioning.** Trust and questioning have their origins in the cumulative and progressive nature of science. The principle of trust assumes that others pursue true knowledge with appropriate means, and attributes the mistakes in scientific research to the difficulties and complications in seeking truth. The principle of questioning requires scientists to be always on the alert for mistakes that may occur and not to rule out the possible existence of scientific misconduct.

- **Mutual respect.** Mutual respect is the foundation for the harmonious development of the scientific community. The principle of mutual respect places emphasis on respect for the copyright of others and on acknowledgement of and respect for the research findings and priorities of others through citations. It requires scientists to respect substantiation and refutation of their own research assumptions by others, and to treat the skepticism of others with a frank, sincere and unbiased attitude. It also requires collaborators to assume an obligation to respect each other's capability, contribution and values.

- **Openness.** Openness has always been stressed and practiced by the scientific community. Traditionally, the principle of openness emphasizes that only findings that have been made public

can be recognized by the scientific community and can possess scientific validity. In today's world where the protection of intellectual property rights is of great importance, the scientific community places significant emphasis on safeguarding the principle of openness, aiming at advancing and promoting the sharing of public knowledge products by all.

4. The social responsibilities of scientists

Modern science and technology is penetrating and profoundly influencing all aspects of our social life. As people develop higher expectations of science, scientists will be expected to assume even more social responsibility.

Since the testing ground and application of modern science and technology involves all of nature and society, the outcome of socializing new findings and new technologies is often uncertain, and may be leading humanity and nature into an irreversible development process. The results of scientific activities directly influence humanity itself, as well as social and environmental ethics. They require that scientific professionals must all the more consciously observe the fundamental ethics of human society, treasure and respect nature and life, and respect human value and dignity while contributing to the creation and development of a scientific ethic that is aligned with the times.

Since modern science and technology has both positive and negative impacts, and is characterized by a high degree of professionalism and specialization, scientific workers must all the more consciously avoid the negative impacts of it, and must accept re-

sponsibility for assessing the end results of their work. This responsibility includes testing and assessing all the possible outcomes of their own work. Should mistakes or risks be discovered in research, the work should be altered or even interrupted; and if the scientists cannot make such decisions independently, affected research should be temporarily postponed or suspended, and the public should be warned in a timely manner.

Since the development of modern science and technology drives the future of economic and social development, scientific professionals must be keenly aware of their mission in history and their responsibilities to society. They must value their professional reputation, avoid placing scientific knowledge above other knowledge, avoid misuse of scientific knowledge, and avoid waste and abuse of scientific and technological resources. Scientific professionals should regulate their research behavior in keeping with social, ethical and legal aspects, and strive to enhance the public understanding of science.

In the time of reform, innovation and development, and in the historical process of the revival of the Chinese nation, we must bring into play the full power of science. This power not only comes from the physical strength of science and technology as the primary productive forces, but also from the notion of science as the spiritual strength of an advanced culture. The staff of the Chinese Academy of Sciences calls on their colleagues in the scientific community to join with us in practicing a correct notion of science, taking on the social responsibility of science, and contributing to the effort of building China into an innovative and harmonious society.