

# On the Science and Technology Tolerance System

Xiaogang Gu\*

Henan Institute of Economics and Trade, Zhengzhou, Henan, 450046, China

\*Corresponding Author.

## **Abstract:**

The inapplicability of the technology tolerance clause is obvious to all in China, that there is no scientific researcher who has obtained scientific and technological tolerance in the past ten years. So it is an empty word to spread the concept of scientific and technological tolerance and construct the environment of scientific and technological tolerance. The reason for this is that there are serious defects in the legislative expression, the scope of applicable items, the attitude of legislators and the way of implementation of science and technology tolerance clause. The cause of such serious defects are the fundamental problems in the legislative idea, which did not put "people" namely "scientific researchers" in the core position, and which can not really recognize the status and role of tolerance, coupled with the lack of understanding of the internal power of science and technology tolerance behavior. In the end responsibility becomes power and rights becomes charity. To create the social atmosphere of science and technology tolerance, the norms of science and technology tolerance should continue to be effective, and the principle of science and technology tolerance should be established. The tolerance of the management department in science and technology should be established as a duty rather than a power, and researchers should be given the right of science and technology tolerance, so as to reduce the researchers' worries about the failure of scientific research and to initiate their own claims and remedies.

**Keywords:** *Science and Technology Tolerance, Principle, Responsibility, Rights*

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## I. INTRODUCTION

There is a consensus in the international community that without tolerance, there can be no scientific innovation. In mature innovation jurisdictions, the tolerance should be the common concept of the science and technology community. Researchers are free to carry out high-risk research activities without psychological burden. The tolerance system has been deeply rooted in the hearts of the people, and the society carefully maintains it to promote innovation. In the immature innovation jurisdictions, the tolerance environment is in the embryonic stage, and it is necessary to formulate a rigid tolerance system with coercive force, and promote it through the exemplary compliance and implementation of government agencies.

When China revised the Science and Technology Progress Law in 2007, it added a science and technology tolerance clause, which was the first time that the science and technology tolerance system became legislation. Last year, the Science and Technology Progress Law was revised again, and the clause

was revised. Science and technology tolerance system is a kind of progress from no to exist, but then it stops. Since 2007, the science and technology tolerance clause has been in a non-operative state, which it has not been implemented by administrative organs, has not been applied by courts, and has not been used by scientific researchers to obtain tolerance.[1]

The non-operative state of the tolerance clause, if it is in a highly tolerant scientific research environment, scientific research community as a whole to follow, is indifferent; In reality, on the contrary, the concept of tolerance is basically not accepted, especially by scientific research management institutions. They assess and determined to post-project in strict accordance with relevant standards, so there is no tolerance at all. In order to change this state, promote the implementation of tolerance clause and the construction of tolerance environment, we need to find out the reasons, and perfect the science and technology tolerance system, otherwise the construction of tolerance environment is out of the question.

## **II. THE CONCEPT OF SCIENCE AND TECHNOLOGY TOLERANCE**

"The science and technology tolerance" clause was added when the Law on Science and Technology Progress was revised in 2007. "The state encourages researchers to explore freely and take risks. If the original records can prove that researchers undertaking exploratory and high-risk research projects have performed their duty of diligence and responsibility, but still cannot complete the project, they shall be tolerated." In 2021, the Law on Scientific and Technological Progress was revised to read, "The state encourages researchers to explore freely and take risks, and creates a good atmosphere that encourages innovation and tolerates failure. If the original records can prove that researchers undertaking exploratory and high-risk research projects have performed their duty of diligence and responsibility, but still cannot complete the project, they should be exempted from liability." Its main content is that researchers should be "tolerated" or "exempted" if they fail to complete the project despite their due diligence.

"The science and technology tolerance rules" are the rights, obligations and corresponding legal consequences stipulated in the science and technology tolerance clause. The conditions are as follows: the researchers engaged in high-risk (vertical) scientific research projects are still unable to complete the projects if they perform their duties with due diligence; The pattern is: should; The consequence should be "tolerated" or "exempted".

"The science and technology tolerance principle". the tolerance principle of science and technology assumed is going to be applied to all of laws of Science and Technology, as an important concept, penetrates in legislation throughout, balances the conflict between different rules in specific cases and multiple interpretations of clause, make a trade-off with tolerance principle to become a scientific community accepted standards, promote tolerance of science and technology of society as a whole.

"The non-operative state of the tolerance clause". Since the science and technology tolerance clause came into being in 2007, there is no case of science and technology management department applying this clause, and there is no case of science and technology tolerance on the website of judgment documents. That is to say, this clause has not played its due role in law enforcement and judicature in more than ten

years, and is in a state of "not in use by law". What is more serious is that no one pays attention to this state. Up to now, only one article by Guo Chuangtuo has raised doubts about it, which is completely contrary to the propaganda of the government and media on the tolerance of science and technology in reality, and also incompatible with the requirements of The Times for the country to solve the "bottleneck" problem. This kind of supposition, the legislative expression of form has serious problems, lacks maneuverability, certainty and litigability; It is also caused by the fundamental defects of the legislative concept in substance, such as the failure of scientific research and the lack of understanding and respect for the core position of scientific researchers in scientific and technological innovation.

### **III.THE LEGISLATIVE DEFECTS OF SCIENCE OF TECHNOLOGICAL TOLERANCE CLAUSE**

#### **3.1. Errors in Legislative Expression**

From the semantic point of view, there are inconsistencies in the expression of science and technology tolerance clause, and the meaning expressed is completely opposite to the goal pursued by science and technology law. The technology Forbearance clause is a two-sentence principle that encourages exploration, followed by a legal rule of diligence.[2] Since the punctuation mark is a stop, the two aspects are juxtaposed: the state encourages scientists to explore freely and to take risks. Obviously, the logic is wrong. If this part is the "principle" to encourage scientific and technological personnel to explore freely, it is impossible for them to "take risks" by themselves.[3] Promote and build an innovation environment that tolerates failure. Both the logic of the former sentence and the connotation of the latter sentence are problematic in the expression of the former sentence.

This should be an oversight and a violation of the usual expressive habits of Chinese. As can be seen from the usual expressions of scholars, Chen Guangjun said in his article, "In order to encourage scientific and technical personnel to have the courage to explore, climb the peak of science and technology, and actively undertake exploratory research projects..." "The original records can prove that the scientific and technological personnel undertaking the explorative scientific and technological research and development project with high risk of failure have fulfilled their duty of diligence and still cannot complete the project..." "Otherwise, science and technology personnel may not dare to undertake explorative projects with high risk of failure..."[4] Although the problem is not directly pointed out, it is common to use "bear... Project "structure. The state encourages scientific and technical personnel to explore freely and to undertake high-risk scientific research projects. In this way, not only the errors of the preceding sentence, but also the logical contradictions between the preceding and the following sentences are avoided.

#### **3.2. Questions of Applicable Items**

The applicable science and technology tolerance projects only include "explorative and high-risk science and technology research and development projects", which are too narrow in scope, and the judgment criteria are too vague and lack of operability.

First, science and technology programs exclude humanities and social science programs, that is, science and technology tolerance does not apply to social science programs. The term "science and technology" or "science and technology" as the basic category of science and technology law, there is a certain conventional view that science and technology is natural science but does not include social science. For example, Article 2 of the Law on promoting the Transformation of Scientific and Technological Achievements "Scientific and technological achievements mentioned in this Law refer to achievements of practical value that are produced through scientific research and technological development. ... The transformation of scientific and technological achievements mentioned in this Law refers to the subsequent experimentation, development, application and popularization of scientific and technological achievements for the purpose of raising the level of productive forces until the formation of new technologies, new processes, new materials and new products, and the development of new industries." Article 22 of the Rules for the Recognition of Technology Contracts of the Ministry of Science and Technology: "Contracts concluded for basic research projects solely aimed at revealing natural phenomena, laws and characteristics, as well as contracts concluded for soft science research projects shall not be registered". Humanities and social sciences that study social phenomena are excluded, and soft science is definitely not a technology contract, because "new technologies, new processes, new materials, and new products" cannot be produced. Scholars also mostly exclude social sciences. He Yue believes that "The laws and regulations regulating the management of science and technology in China mainly include: The act of the progress of science and technology, promote the conversion of scientific and technological achievements, the foreign trade law, the "regulations on the administration of technology import and export", the national natural science fund project funds management method ", "the technology contract acknowledging and registering management method", around the country science and technology reward way, natural science fund management approach ", etc.[5] It can be seen that the relevant system of social science projects has been explicitly excluded, which is consistent with the reality that science and technology are more important than humanities and social sciences.

Second, it is uncertain whether technological tolerance can be applied to horizontal projects. From the legislative content, there are differences in the application of science and technology tolerance in vertical and horizontal projects. For science and technology administrative departments and public research funds, as long as "original records can prove that the scientific and technical personnel undertaking exploratory and high-risk science and technology research and development projects have performed their duty of diligence and responsibility, but still cannot complete the project", it is necessary to apply the tolerance system. If it is transverse project, especially the enterprises and scientific research personnel or research institutions signed a technology contract transverse project, researchers even able to prove that he has done the "obligations" faithfulness, science and technology management department or the judiciary can directly eliminate the relevant clause of the contract law applicable, or entrust enterprise whether there is a mandatory obligation must be tolerant, This question becomes "is the rule of technological toleration mandatory rule of validity?" The problem. "Sex" rules, refers to the laws and administrative rules and regulations specified in violation of the prohibitive provisions will result in a contract is invalid or not contract specification, there is no specific provision in the law and administrative regulations or the violation of the prohibitive norms will cause the contract invalid or not, but if the violation of the

prohibitive norms continue to perform the contract, Will harm the national interest, the social public interest and the third party significant interest norms. From the significance of science and technology tolerance in the development of science and technology, the violation of the principle of science and technology tolerance will hinder innovation and damage the national interests. Therefore, from the perspective of a single horizontal project contract, it is hard to say that not applying the clause will "damage the national interest, social public interest and the major interests of a third party". In addition, there are almost no existing cases since the establishment of the rule of technological tolerance, which can also reflect the understanding of the status of the rule from the side. In addition, the nature of the advocative legal norms of the Law of Scientific and technological Progress.[6]

Finally, what is "exploratory and risky" is uncertain. In terms of physical content, "exploratory" and "risky" are too abstract for scientific research management institutions or judicial departments to use as standards to judge specific cases, which to some extent gives administrative institutions an excuse to be lazy. If there are procedural provisions, such as the formation of special expert groups to make judgments on such professional issues, so as to make up for the deficiencies of administrative agencies in this area, part of the problems can also be solved. The reality is that there are no provisions on the formation of relevant expert groups and procedures for intervention.

### 3.3. Institutional Arrogance

The arrogance of law enforcement, given by lawmakers, is very different from the spirit of tolerance.

If the conditions set out in the rules of technology tolerance are met, the "technology authority" will "grant tolerance" or "grant immunity". In Chinese, "giving" means "making the other person get something". In Chinese, "give" has connotations of arrogance and charity. Whether the term "giving" is appropriate, it is important to distinguish between "giving" as a special reward or subsidy that was not there before, and "giving" as a regular reward. From the general law of the development of science and technology, scientific research is a kind of constant trial and error of high failure rate of work, failure has a certain inevitability, success is accidental. If the whole society is not tolerant of scientific research with a high failure rate, researchers will have no incentive to undertake high-risk projects with a long time and high failure rate, especially high-risk basic research that can solve the "bottleneck problem". Scientific research cannot progress, and technology and industrial safety are just empty talk. Tolerance is not charity, not extra reward, but on the basis of understanding the law of scientific development in order to promote the development of science and technology necessary support. So give arrogance that is filled with some kind of charity. During the group deliberation of the 2007 Revised draft of the Science and Technology Progress Law, Zhang Xuedong, member of the Committee, even thought, "Is it appropriate to use the word 'tolerance' here? This equates crime and making mistakes with scientific failure. It is not easy for scientists and technicians to accept. Allow a project to be completed without completing it. Don't use that word." [7] Even the word forgiveness might have some bad associations when applied to researchers, let alone "giving."

In 2021, the revision of "granting leniency" to "granting immunity" is a substantial setback. For the convenience of discussion, the 2007 clause is called the tolerance clause, and the 2021 clause is called the exemption clause. If the tolerance clause is still vague about whether the researcher is responsible or not, and the theoretical history and conceptual structure of the tolerance need to be found, the exemption clause is very clear: first, the researcher must be responsible for the failure of the research; Secondly, the researchers are exempt from liability because of their diligence. In other words, the failure of the research must be the responsibility of the researchers, which is unacceptable. There are many reasons for scientific failure, at least one of which cannot be held accountable: For many years devoted to explore human try invented a perpetual motion machine, but the theory tells us a perpetual motion machine is not possible, in theory it is impossible to have discovered a perpetual motion machine invented before exploratory behavior cannot let any scientists to take responsibility, this is the need for further innovation and development to bear the cost of state or society. There is only one kind of behavior is not attributable to the scientific research failure of the scientific research personnel, there is no responsibility, why the clause of "exemption". It is obvious that "exempting" confuses the grounds of justification and exemption, and confuses the norms of conduct and the norms of judgment.[8]

#### 3.4. The Ambiguity of the Implementation Method.

What are the ways of tolerance, has been in a state of ambiguity. In a statement on the 2007 Science and Technology Progress Law of the People's Republic of China (revised draft) : "Independent innovation requires a relaxed academic environment that enables scientists and scientists to dare to explore. To this end, the draft stipulates that the completion of research projects with high risk of failure will not be affected if the original records prove that the project personnel have fulfilled their duty of diligence and responsibility."[9]

In other words, in the draft of the Law on Science and Technology Progress of the People's Republic of China (Revised Draft), the bottom line of the implementation method is set for the lenient implementation of science and technology, that is, "it will not affect the project conclusion". And the formal provisions of the "grant tolerance" or "grant immunity" expression, even the relevant provisions of this bottom line. In fact, the application behavior of the project includes two aspects, one is the project itself, the other is the funds; Project establishment also includes project and fund two aspects. As for the conclusion, if it is compared with the "bottom line" stipulated in the draft, it should be consistent with the usual conclusion, which should include both the project and the funding, but the expression of "giving tolerance" is very vague. Moreover, the implementation of the tolerance project will still face a series of problems after the completion of the project: whether it will affect the further application of the project by scientific researchers, whether the project can be treated equally in the professional title evaluation and award evaluation.



## IV.THE ORIGIN OF LEGISLATIVE DEFECTS OF TECHNOLOGICAL TOLERANCE CLAUSE

### 4.1. There are Logical Errors in the Legislative Concept

Related to the tolerance system, the biggest logical error in the legislative concept is the failure to correctly understand the role of researchers.

Since the United States launched a trade war against China, the United States can easily "choke" China, and the problem of the control of key core technologies from others has been highlighted. The "bottleneck" problem is not only an issue of industrial safety and insufficient technology supply, but also a serious problem existing in the current system of scientific research policies and regulations, namely, who is the subject of scientific and technological innovation. From the existing legal system of science and technology, it is generally believed that the subject of scientific and technological innovation is enterprises. The Law of Science and Technology Progress puts "technological progress of enterprises" in the third chapter to "strengthen the dominant position of enterprises in independent innovation". "From four aspects reflect".[10] But the usual logic: researchers develop the technology and supply it to firms for industrialisation. This kind of supply, of course, may be happening outside the enterprise, but also can happen in the enterprise, that is, to hire relevant scientific research personnel in the enterprise internal research and development. The logic is simple and clear: research comes from research technicians. If the current scientific and technological legislation idea is called "enterprise subject theory", this paper is more inclined to "scientific research personnel subject theory".

There are also the following problems: First of all, which is more important in scientific research innovation between enterprises and researchers? The scientific research personnel here include the internal scientific research personnel of enterprises as well as the scientific research personnel of universities and institutes. Obviously, without researchers in modern society, innovation is almost impossible. Secondly, if enterprises are regarded as the main body of scientific and technological innovation, and the innovation is realized by their internal researchers, the transmission efficiency of the policy will be problematic, because there will be more direct and greater incentives for researchers directly. Thirdly, from the perspective of technology demand and supply, enterprises are the demander of technology, and it is their strength to identify what kind of technology they need. And researchers are the suppliers of technology, the creators of scientific and technological inventions. Treating enterprise as innovation in the main reverses this relationship. Again, the strength of the enterprise should be in the identification of technology requirements and technology transformation. If scientific and technological innovation cannot be industrialized, its social effect cannot be maximized. Enterprises play a key role in the expansion of innovation effect, but enterprises cannot be regarded as the main body of scientific and technological innovation. This legislative concept is reflected in the legislative structure of the Law on Scientific and Technological Progress, which puts "scientific and technical personnel" in the fifth chapter, followed by safeguard measures, legal liability and supplementary provisions, which is actually the last chapter.

This kind of legislative idea and practical working idea that does not place scientific researchers in the main and core position of scientific and technological innovation reflects the scientific and technological tolerance system, there are serious mistakes in legislation, and the law enforcement is directly fictitious.

#### 4.2.Lack of Understanding of the Role and Status of Scientific and Technological Tolerance in the Law of Scientific and Technological Progress

If scientific researchers cannot be placed in the main and core position of scientific and technological innovation, the legislative principles cannot be tailored around scientific and technological researchers. If the principles of scientific and technological law are not formulated around scientific and technological researchers, the role and status of scientific and technological tolerance will not be fully understood.

In order to promote the development of science and technology, the society should provide a free and relaxed environment for researchers, who are the subjects and core of scientific and technological innovation, because scientific and technological research is a matter of high risk, high investment and long period. Normally, most explorations will end in failure, and very few will succeed. Scientific research and exploration is also extremely expensive. Many people underestimate the cost of scientific research and exploration. In fact, even a small achievement, such as printing balloons, will cost hundreds of millions of dollars. It is extremely common for European and American research projects to be shut down because of lack of funding. Research is also extremely cyclical, and even the most remarkable achievements historically seemed to earn nothing at the time. So good results are accumulated through numerous failures, time and money. However, China's science and technology field does not seem to hear too many cases of failure, which is very abnormal, may be the failure of science and technology to cover up; Or it could be that the risks of technology are artificially reduced, which leads to a decline in the quality of innovation and further increases the probability of "bottleneck" technologies.

Can't meet the development of science and technology of the high risk of law, or recognize the did not embodied in the legislation, in essence is not respect for law of development of science and technology, in the real world is surely research failed to turn a blind eye to science and technology personnel, can't face up to the role and status of the tolerance of science and technology, will think of "tolerance" is a kind of alms "giving".

#### 4.3.Insufficient Understanding of Power Structure on Technological Tolerance Behavior

For scientific research personnel in science and technology innovation in lack of understanding of the subject and core position can not be the tolerance of science and technology as the main principle of throughout generate, coupled with the lack of science and technology, the study of tolerance itself does not recognize tolerance behavior contained in the power of science and technology and its structure, and this kind of power structure to have a direct impact on science and technology of tolerance. A complete scientific research project, including application, project approval, project closing three steps. The application actually has two aspects: the application of the project itself, corresponding to the science and



technology management agency, the other is the application of project funds, corresponding to the public fund management department; Project approval actually also contains two powers, one is the approval of the project, one is the approval of funds; One is the conclusion of the project itself and the other is the confirmation of the use of funds. From the Angle of promoting the development of science and technology, the power to the project is the main power, and the power to the funds is from the power. Funding is only to assist the smooth progress of scientific research projects, therefore, the approval of the project means that scientific research to obtain funding projects; Agreement to close also means that funds do not need to be returned as long as they comply with normal financial management practices. Tolerance as a special way of project, the implementation of tolerance to the project, as long as it does not violate the usual financial and economic laws and regulations, must be tolerant of funds. In other words, if the science and technology management measures are lenient in accordance with the law, the financial department is not allowed to object to this, and is not allowed to conduct a substantive review of the science and technology management department's application of the law in accordance with the law, unless the researcher violates the financial and economic regulations.

Some administrative powers belong to the binding power, some belong to the discretionary power. In the aspect of whether to implement science and technology tolerance, it belongs to the binding power, and the administrative organ has no choice. On the basis of the decision to implement tolerant, implement tolerant approach, although it is not clear what, what is the condition of implement way, but as a result, there are several or more aspects such as post-project, reserve fund, post-project certificate, and do not do special markers, etc., because there may be a choice, may belong to the discretionary power.

#### 4.4. Tolerance Responsibility, Tolerance Right and Tolerance Procedure are Absent

Compared with power, tolerance of scientific research administrative agencies should be a duty in their own right. Only if the tolerance is not to give a research executive branch but a duty under the thinking of, will become the duty of administrative agencies of tolerance build, in the scientific research personnel under the condition of entity and procedure conditions, government agencies do not implement tolerant should bear administrative responsibility, tolerance clause fause of science and technology will gradually improve, tolerant environment will be gradually set up and maintain. Corresponding to the responsibility of science and technology administration, the right of tolerance should be given to researchers to form a benign confrontation, and they can protect themselves in substance and procedure and initiate a tolerance system in time. Therefore, in the context of "giving", the relevant scientific and technological personnel have no corresponding right to tolerance, that is to say, on the premise of being tolerated, the scientific and technological personnel have no right to request the scientific and technological administrative organs to implement the right to tolerance. It would be more reasonable to change the word "give" to "must" or "should".

The causal relationship between the current intolerance of technological tolerance and the lack of practical implementation cases of technological tolerance is self-evident. Such intolerance leads to the lack of operability in the implementation of the provisions of tolerance, which is not only reflected in the

unclear power structure mentioned above, but also in the lack of establishment of the right to tolerance of scientific researchers. On the condition that science and technology tolerance is satisfied, if the right of tolerance of scientific research personnel is stipulated, the scientific research personnel can claim the right to change to the science and technology management agency. The right of scientific and technological tolerance is set as a very important right of scientific researchers, who directly claim to the scientific and technological management institutions. If the scientific and technological management institutions do not implement the right, the relevant personnel can file a lawsuit to safeguard their rights. Without the provisions of the right of tolerance in the current legislation, the relevant procedures and lawsuits lack the basis for filing, and the dilemma of the lack of operability of scientific and technological tolerance cannot be changed.

There is also no prescribed procedure for implementing technological tolerance. To date, the documents of the science and technology administration do not contain any provisions regarding the implementation of technology tolerance procedures. Under the current system, projects may or may not be closed, there are no other options, and neither before nor after the announcement of a project is given time and procedure for researchers to assert technological tolerance.

## **V. HOW TO TOLERATE IN SCIENCE AND TECHNOLOGY**

### **5.1. Proposed Revision of the Science and Technology Tolerance Clause**

"The state encourages scientists and technicians to explore freely and take risks. If the original records can prove that scientific and technical personnel undertaking exploratory and high-risk scientific and technological research and development projects have performed their duty of diligence and responsibility, but still cannot complete the project, they shall be forgiven." The 2021 science and technology Tolerance clause reads: "The state encourages scientists and technicians to explore freely and take risks, creating a good atmosphere that encourages innovation and tolerates failure. Scientific and technical personnel undertaking exploratory and high-risk scientific and technological research and development projects shall be exempted from liability if they can prove that they have fulfilled their duty of diligence and responsibility."

Through the foregoing discussion, the science and technology tolerance clause can be changed to:

"The state creates and maintains a tolerant environment for scientific research and development.

We will encourage scientists and technicians to explore freely and undertake high-risk research projects. Scientific and technical personnel undertaking explorative and high-risk scientific and technological research and development projects who, having fulfilled their duty of diligence and responsibility, are still unable to complete the projects shall have the right to tolerance. Scientific and technical personnel may claim the right of tolerance to the science and technology administrative organs, and may apply for administrative reconsideration or bring administrative litigation if they disagree."

First of all, the problem of expression is revised. Secondly, by confirming the responsibility of tolerance of scientific research management institutions and the right of tolerance of scientific research personnel, the scientific research personnel can safeguard their rights by themselves, change the current situation that the science and technology tolerance institutions are not applicable to this clause, eradicate the problem of false provisions, force the government agencies to implement tolerance, and change the original application logic of the clause.

## 5.2. Legislative Suggestions on the Principle of Technological Tolerance

Through the above amendments, the science and technology tolerance clause is put in the general provisions of the Science and Technology Progress Act. On the one hand, paragraph 2 can still serve as a rule. As a rule, as long as the conditions are met, the science and technology management agency can exercise the power of tolerance according to its functions and powers; Researchers can also claim the right to tolerance to the scientific research administration. On the other hand, the first paragraph is the science and technology tolerance principle of the Science and Technology Progress Act.

By tolerance principle established for the science and technology, and science and technology of the laws, regulations and policies related to the overall must comply with the principles, the principle throughout the generate and policy, can we truly achieve tolerance environment of science and technology building, can we truly will be as the main body of scientific research innovation and core of scientific research personnel, and play to their initiative, to bear the high risk of basic research. The legislative purpose of science and technology tolerance is to create an environment in which the whole society tolerates the failure of scientific research. After it becomes a principle, all subjects in the scientific research chain, such as scientific research management institutions, scientific research expenditure institutions, scientific researchers, scientific research educators and enterprises, will directly experience the restriction or protection of the principle on their specific behaviors in all behaviors involved in the implementation of science and technology laws and policies. In the process of constructing and improving the relevant science and technology system and mechanism, science and technology tolerance must be regarded as the necessary basis of its legitimacy.

Tolerance of science and technology is not endless indulgence, but in order to build scientific research innovation "infinite, has a bottom line" the necessary, therefore, the tolerance of science and technology into core principles of laws, regulations and policies of science and technology, it is necessary and the research integrity principle, the principle of "scientific ethics" together, forming a closed loop of legal principles. If only the principle of science and technology tolerance, it is not enough to reflect the call of science and technology basic law that "unlimited possibility" of scientific research is inevitably required by the government-dominated society's expectations, but also the principle of science and technology ethics and the principle of scientific research integrity. The ethical principle of scientific research is the ethical call of scientific and technological community, the inevitable requirement for scientific research personnel to "seek truth", and the inevitable embodiment of scientific research personnel's self-adherence to scientific

and technological ethics in science and technology law, which can realize "bottom line". Through the "bottom line" principle of scientific research integrity, to ensure the mutual respect of scientific research community; The whole society creates and maintains a tolerant environment for the scientific research community through the principle of "there is no limit" in science and technology tolerance.

## VI. CONCLUSION

The reason why the science and technology tolerance clause is in the virtual state lies in the defects of the legislative expression and the backwardness of the legislative idea. The whole clause has become an advocacy clause, which does not have the force of compulsion and the administrative organ is not willing to take responsibility. Therefore, if tolerance is set as the right of scientific researchers, scientific researchers can claim their rights to administrative organs and judicial organs, and design special procedures in administrative organs to facilitate scientific researchers to implement the right of tolerance, the clause of scientific and technological tolerance can no longer be shelved. In addition, the establishment of scientific and technological tolerance as the principle and concept of the whole science and technology law should be followed, and the establishment of the core position of scientific and technological innovation personnel is also conducive to the establishment of a tolerant environment in the field of scientific research.

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## REFERENCES

- [1] Guo chuangtuo. The dilemma of the legal reform of scientific research tolerance system and its solution. Law forum,2020,35(06):67-74.
- [2] Yu Zhaobo. Legal Interpretation of science and technology tolerance System. Science and Law, 2009(05):24-26.
- [3] Lin Shaozhen. "Tolerance of failure" is an important mechanism for cultivating scientific and technological talents -- Based on the perspective of Occupational Structure. Journal of Huaqiao University (Philosophy and Social Sciences Edition), 2012(04):33-37.
- [4] Chen Guangjun. An important Law promoting scientific Development -- A review of the Revised Law on Scientific and Technological Progress. Science, Technology and Law, 2008(03):05-09.
- [5] He Yue. Science and Technology Law. Beijing. Law Press.2014:2.
- [6] Yang Shibing. On advocative Legal norms. Qilu Journal, 2011(05):98-101.
- [7] on tolerance and nature of the association for science and technology - group review a draft amendment to the science and technology, speech act (4)  
[http://www.npc.gov.cn/zgrdw/huiyi/cwh/31/2007-12/31/content\\_1388429.htm](http://www.npc.gov.cn/zgrdw/huiyi/cwh/31/2007-12/31/content_1388429.htm)
- [8] Yang Chunran. Justification and exemption: Deconstruction of Norms of Conduct and Adjudication norms. Journal of China Criminal Law,2015(02):23-39.
- [9] Explanation on the Law of the People's Republic of China on Scientific and Technological Progress (Revised Draft) [http://www.npc.gov.cn/wxzl/gongbao/2008-02/23/content\\_1462438.htm](http://www.npc.gov.cn/wxzl/gongbao/2008-02/23/content_1462438.htm)
- [10] he progress of science and technology of the People's Republic of China law interpretation points. [http://www.npc.gov.cn/zgrdw/npc/zfjc/kjbfzfc/2010-05/12/content\\_1572635.htm](http://www.npc.gov.cn/zgrdw/npc/zfjc/kjbfzfc/2010-05/12/content_1572635.htm).