

## Application of the Institution of Exclusive Rights in the Field of Science

This content has been downloaded from IOPscience. Please scroll down to see the full text.

2017 J. Phys.: Conf. Ser. 781 012064

(<http://iopscience.iop.org/1742-6596/781/1/012064>)

View [the table of contents for this issue](#), or go to the [journal homepage](#) for more

Download details:

IP Address: 24.1.25.206

This content was downloaded on 07/03/2017 at 16:05

Please note that [terms and conditions apply](#).

You may also be interested in:

[European science: myth or reality?](#)

G R Bishop

[Field Emission from Superconductors](#)

Jun Kudo and Shogo Nakamura

[Latest research results on the effects of nanomaterials on humans and the environment: DaNa – Knowledge Base Nanomaterials](#)

C Marquardt, D Kühnel, V Richter et al.

[GEOMETRY OF THE HUBBLE SPACE TELESCOPE WIDE FIELD/PLANETARY CAMERA FIELD](#)

Andrew Gould and Brian Yanny

[S.I. VAVILOV—EMINENT SCIENTIST AND LEADER OF SOVIET SCIENCE](#)

A N Nesmeyanov

[2016 International Conference on Environmental Engineering and Sustainable Development \(CEESD 2016\)](#)

# Application of the Institution of Exclusive Rights in the Field of Science

**D Yakovlev<sup>1</sup>, E Yushkov<sup>1</sup>, A Zanardo<sup>2</sup> and M Bogatyreova<sup>1</sup>**

<sup>1</sup> National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation

<sup>2</sup> Ca' Foscari University of Venice

E-mail: DYYakovlev@mephi.ru

**Abstract.** The problem of legal protection of scientific research results is of growing interest nowadays. However, none of the three hitherto existing rights (the right for trade secrets, patent and copyright) is able to fully take into account the characteristics of scientific activities. In Russia, the problem of legal protection of scientific research results has been developed actively since the 50-ies of the last century, in connection with the introduction of the system of state registration of scientific discoveries. A further concept allowed for not only the registration of discoveries, but also the entire array of scientific results. However, theoretical applicability of exclusive rights institutions in the sphere of science remained unstudied. The article describes a new system, which is not fixed in legislation and remains unnoticed by the vast majority of researchers. That is the institution of scientific and positional rights, focused on the recognition procedure of authorship, priority, and other characteristics of intellectual scientific results value. In case of complex intellectual results, comprising scientific results, the recognition of result-oriented exclusive rights proves to be unsustainable. This circumstance urges us to foreground the institution of scientific and positional exclusive rights. Its scope is budget science where non-fee published scientific results are generated. Any exclusive right to use open scientific results is out of the question. The sphere of open (budget) science is dominated by scientific and positional exclusive rights, sanctioned both by the state (S-sanctioned), the bodies of the scientific community (BSC-sanctioned) and scientific community (SC-sanctioned) rights.

## 1. Introduction

In Russia, the problem of legal protection of scientific research results has been developed actively since the 50-ies of the last century, in connection with the introduction of the system of state registration of scientific discoveries. A further concept allowed for not only the registration of discoveries, but also the entire array of scientific results [1].

However, theoretical applicability of exclusive rights institutions in the sphere of science remained unstudied.



As early as the 20-ies of the last century, there arose a discussion in foreign literature on the issue of the so-called "scientific intellectual property". It implied the right of the authors of scientific results, used in creating inventions, to share the income generated from the commercial use of these inventions [2].

However, those discussions ultimately came to naught, mostly because of the poor theoretical elaboration of the problem.

About half a century ago, there was a significant turn that took place rather in sociology of science, than in the field of law. In 1957, the American sociologist Robert Merton put forward the concept of symbolic intellectual property in the field of science [3] and summarized, that "... the social component of scientists' moral income takes the form of crumbs of recognition of colleagues. By accumulating gradually, they shape the wealth of its reputation."

According to R. Merton, intellectual property right is based on the recognition on behalf of peers and is protected by a set of unwritten conventional laws. These create a system of social incentives, which, along with internal interest in research, encourage scientists to achieve feasible results and transfer the fruits of their labor to the common fund of scientific knowledge in the form of an open publication, available to anyone who would like to take advantage of them. "These unwritten laws impose symmetric obligations on anyone, who uses the fruits of other labor; oblige them to specify the source and thereby reward the authors by recognizing their contribution to science [4]. The only way to establish the author's ownership of the discovery traditionally involves the recognition of this right by the scientific community and the consequent colleagues' respect".

Notwithstanding R. Merton's highly stimulating concept, it appears necessary to take an alternative approach and focus on some of its weaknesses, for example, the statement, according to which the object of intellectual property is related to the result of intellectual activities.

We are reasonably sure that the recognition of contribution to science can be hardly regarded as such a result. In fact, recognition is caused by the evaluation activities of the members of the scientific community, with the right to use the results belonging to their owners. It is interesting to note that the recognition of a contribution to science gives evidence of a special undeniable character of the result. Its emergence signals a turning point in the researchers' position in the "smart market", i.e. promotes professional advancement in a competitive environment and provides benefits, freedoms and opportunities associated with this promotion.

The researcher's new professional position is determined by the recognition of obtained scientific results (SR) due to certain characteristics – novelty, level of creativity, scientific validity, etc. Just these features serve the ground for recognizing the fact of owning a certain scientific qualification by the author of these results. Following from the recognition of the mentioned facts is the researcher's professional position – the object of rights that are not intellectual and therefore were wrongfully attributed to the results of intellectual activity.

## **2. The proposed theoretical concept of exclusive rights in the field of science**

In the current study, we will follow the logic of theoretical research, including such stages, as identifying significant factors; defining the most important influencing factors; hypothetical extension of the concept and assessment of its explanatory possibilities. Given the fundamental differences between commercial (business) and budget science, it might be worthwhile considering these areas of science separately.

### *2.1. The entrepreneurial science sector*

The sector should include research funded by commercial enterprises and organizations. Regretfully, there is not any statistics on the extent of research results protection in the commercial secret regime. In the Russian Federation, no surveys of commercial enterprises are conducted on the issue. One can only assume that the major part of obtained results is protected by means of the commercial secret regime.

Obviously, the copyright plays a somewhat limited role in the sphere of entrepreneurial science. Income from commercial editions of scholarly monographs is not sufficient to cover the costs for relevant research to be conducted.

### *2.2. The budget science sector*

One of the main concerns is the fact that despite the viability of the copyright, it does not protect the contents of published scientific works.

Thereby, quite justified is a widespread tendency for official categorization of the subjects of scientific activity. Underlying is the system of scientific degrees and titles, particularly those conferred on members of reputable associations of scientists, primarily state academies.

The system also includes the categorization of SR, which is concerned with awarding granted scientific degrees and titles, various state prizes.

### *2.3. Factors for nominating hypothetical concepts*

Among the factors to be referred to as a starting ground in nominating hypothetical concepts are a number of features of scientific research. The scientific characteristics include:

- a worldwide cooperation of researchers;
- coincidence of a community of creators and users of scientific results;
- a higher complexity of new results evaluation than in the field of technology development;
- a higher complexity of new results isolation from previously created ones, than in the field of technology development,
- information-based use of research results against innovative ones, typical of the technology development field;
- the ease of unauthorized borrowing of published scientific results;
- a wider range of result users than in the field of technology development;
- a possibility of obtaining independent SR, missing in the field of literature and art.

### *2.4. The hypothetical concept of intellectual property rights in the entrepreneurial science sector*

The foregoing factors suggest that the institution of commercial scientific secrets and that of copyright can operate in this sector, though to a limited extent.

The factors limiting the use of commercial scientific secrets are:

- a worldwide cooperation of researchers and a limited inter-company exchange of SR (such an exchange is practiced abroad);
- a wider range of result users against the sphere of technology development; the need to attract the scientific community in evaluating obtained results and qualifying researchers working in this sector.

The main factor limiting the use of copyright is an adverse cost ratio for the creation of scientific works and the amount of money proceeds, depending on the number of users. Resulting is a significant share of commercial editions of textbooks, popular scientific and review papers.

### *2.5. The hypothetical concept of scientific and positional exclusive rights in the science budget sector*

The hypothetical concept is to show that the action of the preceding factors leads to effects that manifest in observable facts.

The factor of complexity in isolating new SR from previously created not only excludes SR patenting, but also complicates the evidence-based assessment and, consequently, the assessment of scientific workers' qualification.

The use of SR in new scientific works is a silent, inconclusive and not objectified assessment of such SR, which is critical to normal science budget functioning.

The protection of valuable results is accomplished in an indirect way – by ignoring non-admissible novelty and creative level of works. The first author of a new creative SR gets a monopoly position in the scientific community as the owner of scientific and positional exclusive rights.

The exclusion of non-original works from the area of those used as well as of their authors from the list of contenders for the professional promotion occurs in a natural way, because of the lack of interest in such works by the majority of researchers who become familiar with them.

Owing to the fact that the object of these rights is related to the researcher's position in the scientific community (in a certain "intellectual market") rather than SR themselves, scientific and positional rights cannot be attributed to intellectual property rights. This allows us to refer scientific and positional rights to the category of exclusive rights of a special kind.

So, in case of complex intellectual results, comprising SR, the recognition of result-oriented exclusive rights proves to be unsustainable. This circumstance urges us to foreground the institution of scientific and positional exclusive rights. Its scope is budget science where non-fee published SR are generated. Any exclusive right to use open SRs is out of the question. The sphere of open (budget) science is dominated by scientific and positional exclusive rights, sanctioned both by the state (S-sanctioned), the bodies of the scientific community (BSC-sanctioned) and scientific community (SC-sanctioned) rights.

The positional nature of exclusive rights means that the creator of SR enjoys a monopoly position, enabling him/her to act in the intellectual market as the author of the result that has certain value characteristics. The author of the SR becomes the owner of the primary scientific position of exclusive rights. The author of the totality of research SR acquires a certain scientific reputation and becomes the owner of the secondary scientific and positional exclusive rights.

The complexity of SR as positional objects of exclusive rights (is it correct or do you mean: as objects of positional exclusive rights?) accounts for the fact that the authors of the results only submit applications for obtaining SR to the scientific community. After a certain time confidence increases, in so far as the stated results possess specific characteristics that testify to their value. These features include the following: innovation (priority), the scale of the scientific tasks solved, level of creativity, evidence, etc.

It appears that none of the three existing rights (the right for trade secrets, patent and copyright) has been able to fully take into account the characteristics of scientific activity. In practice, the sphere of science admits a certain likely combination of institutions: S-sanctioned, BSC-sanctioned and SC-sanctioned scientific and positional exclusive rights. In their turn, BSC-sanctioned exclusive rights are possible in a number of variants, differing in the role of individual bodies of the scientific community. The choice of the combination is defined **by the right-acquiring performance** (the ratio of costs and specification results of exclusive rights). These are the factors that predetermined the fate of the institution of state registration of scientific discoveries in this country.

Thus, throughout history various means were developed to prevent unauthorized use of the intellectual results, based on uncontrolled access to the intellectual output – commercial trade secrets, patents, the institution of non-patent monopoly, copyright. However, none of them solves the problem of countermeasures in case of scientific results generated in the field of science budget. Essential for the budget science can be a system, which is not fixed in legislation and has remained unnoticed by the vast majority of researchers. That is the institution of scientific and positional exclusive rights, focused on the recognition of authorship, priority, and other characteristics such as the intellectual value of SR. This system of exclusive rights is suggestive of a monopoly opportunity that the first SR creator enjoys: to use the statement reflecting the recognition by the scientific community. The procedure undoubtedly turns to a recognition of the priority and of other characteristics of the SR, which allows the author to reach a scientific qualification level.

## References

- [1] E.L. Belilovsky, State registration of scientific results: experience and prospects (VNIIPO, Moscow, 1990).
- [2] V.A. Rozenberg, Scientific property. Russian Philosophy of Property (Ganza, Saint Petersburg, 1993), pp. 401-426
- [3] I.I. Lapshin, Philosophy of invention and invention in philosophy: Introduction to the history of philosophy (Republic, Moscow, 1999), 399 p.
- [4] R. Merton, The Matthew effect in science, II: Accumulation of advantages and symbolism of intellectual property, The World of Man. Vol. 1, Issue 3 (THESIS, 1993), pp. 256-276