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# ABSTRACTS

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O. A. Mekh

## **Institutional Factor in Science and Technology Sphere: Implication and Prospects in the Context of Global Change**

*Results of a study on the essential meaning of formal and informal institutes and their role in fostering the environment for the development of science and technology sphere (STS) in Ukraine are contained. Effects of the global science and technology factor for operation of formal and informal institutes in STS, potential transformations and future prospects of formal and informal institutes are analyzed. A review of the social evolution of formal and informal institutions is made; it is proved that STS sphere is conditional on institutional and organizational grounds laid by formal and informal institutes; functions of formal institutes associated with operation of STS sphere in Ukraine and beyond are analyzed; essential limitations and problems of formal institutes operating in STS sphere in Ukraine are outlined; advantages of informal institutes and types of their effects for STS sphere are shown; the social network as a peculiar type of informal institutes in STS sphere is characterized, with detailed reference to its positive (extended opportunities for researchers) and negative effects for STS sphere.*

**Keywords:** science and technology sphere, formal institutes, informal institutes, information and communication technologies, network, service, informationalism, postindustrial society.

S. G. Boublyk

## **Scientific Approach to Analysis of Legal Acts in Science and Technology Field**

*Theoretical and methodological framework for consistency analysis of legal acts in science and technology field with use of statistical methods, quantitative linguistics and legal technique is elaborated. Comparative analysis of the texts of legal acts on science and technology field for 17 countries representing all the types of legal systems is made. Apart from producing a set of analytical characteristics of legislative texts (a-index, and a-index variation coefficient, stylistic and thematic homogeneity), the analysis gives the evidence to compatibility of the selected methodological tools. Also, the results of the study are a classification of the features of thematic diversity, assessment of their impact on the consistency of a legislative text and a methodological guideline for scientific analysis of legal acts in science and technology field.*

**Keywords:** public policy in S&T, legal act, structural unit of a legislative text, stylistic and thematic homogeneity of a text, a-index.

O. S. Popovych, O. P. Kostrytsya

## **R&D Personnel in Ukraine, Russia and Belarus: Evolution of Age Structure**

*Comparative analysis of age restructuring for R&D personnel from Ukraine, Russia and Belarus is made, which confirms the existence of common problems for three countries such as fleeing from R&D of a large part of competent researches aged 40–49, as well as distinctions in the effectiveness of policy pursued by the government and R&D administration agencies with respect to R&D personnel, resulting in the varying impact on the influx of the youth in R&D in these countries. It is shown that the age structure of R&D personnel cannot be considered as a barrier for rapid development of R&D system in either of the countries in question, and the age structure has preserved its viability in terms of researchers reproduction and the large share of researchers in the productive age.*

**Keywords:** age structure of R&D personnel, doctors of sciences, candidates of sciences, researchers, age group.

I. O. Bulkin

## **Peculiarities of the Age Structure of R&D Personnel in the NAS of Ukraine as the Leading Component in the National R&D System**

*The age structure of researches from the National Academy of Sciences (NAS) of Ukraine in comparison with their average age structure across the Ukrainian R&D system and in the leading Ukrainian administrative departments performing R&D is analyzed. The analysis covers the period of 2006–2014. It is shown that the NAS of Ukraine, although being a stable segment of the national R&D system, has the regressive R&D profile of researchers, which features the increasing share of researchers in older age groups. The principal reasons for the regressive age profile of researchers in the NAS of Ukraine are analytically substantiated: operative specifics of the NAS of Ukraine as the network of research organizations and “the club of academic elite”, ineffective mechanism for rejuvenation of research staff; the preserved motivation to R&D work with the older generation of researchers (working pensioners) along with its total loss with researchers of young age groups.*

**Keywords:** age structure, department profile, researchers, R&D system, National Academy of Sciences of Ukraine, aging, labour motivation.

S. O. Zhabin, O. P. Kazmina, O. S. Vashulenko, O. S. Sosnov  
**Analysis of Data from Sociological Study of Young Researchers from  
 the NAS of Ukraine in 2015**

*The article contains analysis of the on-line sociological study of young researchers from the National Academy of Sciences (NAS) of Ukraine, conducted in 2015. Extended data are given on the characteristics of the surveyed sample: respondents' distribution by division of the NAS of Ukraine and by position. The analyzed data cover young researchers' responses regarding patenting, publication activity, participation in international scientific cooperation, academic mobility, availability of technical facilities, equipment and materials at a job place, satisfaction with monthly salary, the satisfaction with their research work and intentions regarding future research carrier as whole and in the Ukrainian NAS in particular. The analysis leads to the following conclusions: social and economic condition of young researchers from the NAS of Ukraine cannot be referred to as good, which is also the case of international cooperation; this bad social and economic condition of young researchers does not seem to discourage them from being engaged in R&D, but it declines their productivity, pushes them to change the job in subsequent years, and radicalize their visions of reforms in the national R&D system as a whole and the NAS of Ukraine in particular, given their poor knowledge of the national legal acts related to R&D.*

**Keywords:** young researchers, National Academy of Sciences of Ukraine, young researchers' councils, questioning, respondent.

N. P. Baranovskaya, Miyagoshi Yukiko  
**Chernobyl Experience of Kiev for the Nuclear Power  
 Plant in Fukushima**

*The situation that occurred in Kiev just after the accident at the fourth energy unit of the Chernobyl Nuclear Power Plant on April 1986 is shown by documents newly extracted from archives. Contrary to the official assurances that the city of Kiev was safe of radioactive emissions from the ruined reactor, the situation in the city was tense. The authorities were taking measures to control water, air, foods, soils, plants, buildings, transport vehicles, to decrease the potential implications of radioactive emission for the health of population, especially children's. However, in difficult political conditions of that time, actions of the authorities incited the populations' distrust and complaint. Kiev was not included in the nomenclature of the territories, affected by the accident. The independent policy aimed to minimize the accident consequences could not be pursued until the year of 1991. However, the problems related with fighting the consequences of Chernobyl accident could not be dealt with effectively due to the social and economic crisis that followed.*

*The accident at the Nuclear Power Plant Fukushima-1 that happened on March 11, 2011, grew into a technogenous catastrophe and turned into calamity for all the residents of the neighboring territories. Like in the USSR, its consequences were silenced, with the delayed evaluation of people to the areas not always suitable for the purpose; the evacuated ones had to wait long to receive sufficient aid from the Tokyo Energy Company (the proprietor of the plant) or the government. A great problem for both Fukushima and Kiev has still been fighting the consequences of radioactive pollution for the health of population, especially children. The assessment of the consequences remains controversial after thirty years of the Chernobyl accident, although medical statistics in Ukraine on the whole and Kiev in particular evidence on extremely negative tendencies.*

**Keywords:** Chernobyl Nuclear Power Plant, accident, Kiev, Fukushima, Kiev City Council, Ecology, Medicine, the evacuated ones.

Yu. A. Khramov, G. G. Kostyuk, Yu. I. Mushkalo  
**Pioneers of Rocket and Space Science and Technology**

*This article organically continues the publication of one of the authors entitled «Early Phase of the Rocket and Space Science and Technology» coming out in No 4, 2015 of this journal, which was the first account of the kind in the Ukrainian historiography, devoted to the formation phase in the global spacecraft industry (1926–1944) and its prehistory (13 century – early 20 century), that is, its ideological dimension. This article contains brief biographies of the scientists and engineers referred to in the above mentioned publication, with some additions, and a large number of new ones. Previous facts are up-dated, a large number of new facts, not disclosed until recently, are introduced in scientific circulation. Accounts of scientists and engineers of Ukrainian origin are given. Most of the biographic accounts are illustrated by portraits or have literary references, with use of abbreviations common in encyclopedic publications.*