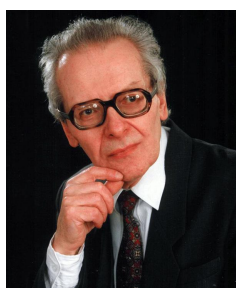
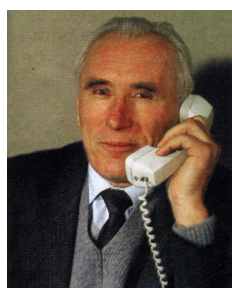


## SCIENTISTS ABOUT TRIBO-FATIGUE\*



*Tribo-Fatigue... it is serious. Tribo-Fatigue studies interaction of phenomena rather than mutual effect of factors.*

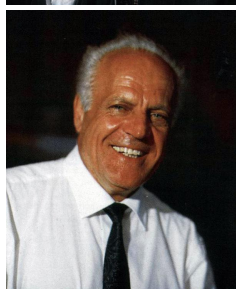
**L. A. Sosnovskiy**, Professor, D. Sc., (September, 1993)



*...For two decades of its existence this new research trend has proved great scientific and practical significance of the problem of studying complex interaction of elements in mechanical systems and methods of their damage control...*

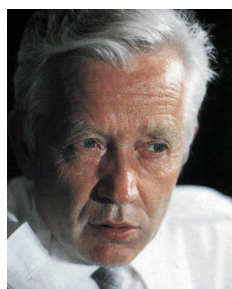
**P. A. Vityaz**, Academician of the NASB, Academician of the International Academy of Sciences of Eurasia, Professor,

D. Sc., Honored Scientist of the Republic of Belarus, First Vice-Chairman of the Presidium of the NASB (July, 2005)



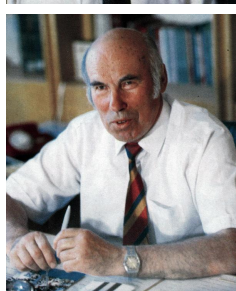
*...It is in Belarus where a new science was born – Tribo-Fatigue – one of the most perspective fields in mechanics.*

**K. V. Frolov**, Vice-president of the RAS, Academician of the RAS and the NASB, Professor, D. Sc., Hero of Labor, Head of A. A. Blagonravov Institute of Machine Studies of the Russian Academy of Sciences (September, 1993)



*...Tribo-Fatigue as a science most likely will hold its place in one of the new trends, in which the Russian Academy of Sciences and the Academies of Sciences of other countries are engaged... This trend includes: physics, chemistry, the mechanics of catastrophes, safety and protection methods. Its aim may be formulated briefly as follows: the elaboration of methods, means, criteria and ways of protection against technical accidents and catastrophes.*

**N. A. Makhutov**, Corresponding Member of the RAS, Professor, D. Sc., Head of the Department of A. A. Blagonravov Institute of Machine Studies of the RAS, Chairman of Scientific Council of the Ministry of Emergency Situations of Russia (September, 1993)



*...Great science is made in Gommel. From the engineering point of view, Tribo-Fatigue is based on the study of the interaction of elements of mechanical systems. It is this interaction that finally governs the reliability of both parts and a machine as a whole. It means that we seize making calculation for each specific element but start making calculation and designs of mechanical systems.*

**M. S. Vysotsky**, Vice-President of the NASB, Academician of the NASB, Professor, D. Sc., General Designer of the Industrial Group "BelautoMAZ", Laureate of the State Prizes of the Republic of Belarus and the USSR (September, 1993)



*...The birth of a new science happens not so often nowadays, therefore it is, undoubtedly, a credit to any state... The Republic of Belarus is the cradle of Tribo-Fatigue. It was acknowledged by the great scientists of our time.*

**V. I. Strazhev**, Professor, D. Sc., Minister of Education and Science of the Republic of Belarus (July, 1995)



*...A new science, Tribo-Fatigue... will allow critical units of machines and structures to be properly designed.*

**V. T. Troshchenko**, Academician of the NASU, Professor, D. Sc., Head of the Institute of Problems of Strength of the National Academy of NASU, Laureate of the State Prizes of the USSR and Ukraine (July, 1995)



*...The problems of the development of aircraft-cosmic equipment, atomic energetics, engineering facilities for conquering the Ocean, deep entrails of the Earth, the creation of artificial joints, heart-valves, different organs of man and an animal, the industrial development of high density magnetic recording, the improvement of reliability of a new*

*generation of machines and mechanisms, raising the efficiency, accuracy and safety are closely linked with the level of knowledge in tribology, corrosion, fatigue, with an understanding of the phenomena of the above-mentioned processes which occur simultaneously. This direction may be called Tribo-Corro-Fatigue.*

**Yu. N. Drosdov**, Professor, D. Sc., Academician of the Academy of Cosmonautics of Russia, Head of the Department of A. A. Blagonravov Institute of Machine Studies of the RAS (June, 1995)



**Gao Wanzhen**, Professor, Director of Wuhan Research Institute of Materials Protection (2002)

*The main problem of the specialists in Tribo-Fatigue is to control the processes of complex (wear-fatigue) damage in order to achieve optimal (and feasible) service life of a specific active system. Efforts are made to use wear and fatigue damage in the process of operation useful to extend durability of a unit.*



**V. N. Koreshkov**, Chairman of the State Committee on Standardization, Metrology and Certification of the Republic of Belarus (September, 1993)

*...The development of Tribo-Fatigue brings about the introduction and standardization of methods of complex wear-fatigue tests. When experts will speak on one, the standardized language, we can correctly and quickly introduce in the industry results of the newest workings out on Tribo-Fatigue and receive from them real return.*



*...Tribo-Fatigue is a new and a rapidly developing branch of mechanics... Some years ago the course "Fundamentals of Tribo-Fatigue" was introduced into the curriculum of the BelGUT... By now necessary textbooks have been published dealing with the course. The presentation of the latest achievements of the science in the framework of the subject contributes undeniably to the improvement of training level of future mechanical engineers.*

**V. I. Senko**, Professor, D. Sc., Rector of the Belarusian State University of Transport, Honored Scientist of Education of the Republic of Belarus (September, 2002)



*...The practical significance of the new science is quite essential... It allows one to study characteristics of materials, parts, units, and entire structures in extremely short time and to optimize the use of expensive materials and structures when fabricating articles that is a crucial cost factor. In principle, if to say briefly on Tribo-Fatigue, the essence of this science and our work... is exactly in this advantage, i. e. control, optimization, and accelerated testing.*

**V. A. Zhmailik**, General Director of PG Gomselmash, Ph.D., Honoured Worker of Industry of the Republic of Belarus, Laureate of the State Prize of the Republic of Belarus (October, 2006)



*...Tribo-Fatigue has already been serving and will serve people.*

**A. V. Kuharev**, Deputy Chief of Education, Science, Culture, Social Protection Department of the Cabinet of Ministers of the Republic of Belarus (June, 1995)



*As far as I know, the energy theory of limiting states of active systems devised in Tribo-Fatigue is the most complete theory of fracture because it accounts of the effects of all the (main) damaging phenomena: fatigue, friction and wear, temperature, corrosion... We, designers, had only to efficiently use it practically.*

**V. A. Shurinov**, D. Sc., General Designer of RCUP GSCB PG Gomselmash, Laureate of the State Prize of the Republic of Belarus (1999)



*...The development of modern technology raises an urgent problem of complex assessment of active systems reliability in science. The latter falls within the domain of Tribo-Fatigue – a new scientific area in mechanics. The development of Tribo-Fatigue, like any other science, is determined, first of all, by the theoretical formulation and theoretical problems solution of practical importance.*

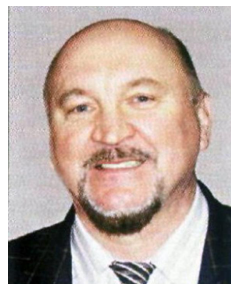
**A. V. Bogdanovich**, Docent, D. Sc., Director of Lida College of the Grodno Ya. Kupala State University (2008)



*The results obtained in Tribo-Fatigue enrich many branches of mechanics – the mechanics of solids, elasticity theory, applied mechanics, contact mechanics, tribology, mechanics of fatigue fracture etc. ... In addition, the basic ideas of Tribo-Fatigue gave impetus to the development of new areas of knowledge (such as mechanothermodynamics).*

*Finally, we should note the interest in Tribo-Fatigue ideas by humanities, especially philosophy.*

**M. A. Zhuravkov**, Professor, D. Sc., First Vice-Rector of the Belarusian State University, Head of the Department of Theoretical and Applied Mechanics of the Belarusian State University (October, 2010)



*If we take into account that the processes of wear and fatigue damage... take place in biological systems, it is logical to agree... with the extended definition of Tribo-Fatigue as the science of wear-fatigue degradation of any active systems, including the living and reasonable beings... Tribo-Fatigue is able to some extent to apply for a role of integrating science of man, when account is taken of all the issues... ranging from birth and ending with death and even problems of transcendent states... It is significant that Tribo-Fatigue in this respect makes an*

*attempt to overcome the cult of technology that has been developing in the midst of the industrial society for many years. It revives the cult of man saying in this case about normal and abnormal life conditions, problems dealing with vital loads regulations and counteraction to them, about fatigue and life time, good and evil.*

**A. A. Lazarevich**, Ph. D., Vice-Director of the Institute of Philosophy of the National Academy of Sciences of Belarus (1999)



*Among the efficient ideas developed in the unique scientific discipline Tribo-Fatigue there is a fundamental idea of systems damage and a curious concept of L-risk. Based on the fact that the growth in the degree of systems damage inevitably leads to its ruin the conclusion can be drawn that the evolution of the system regarding damage eventually "overgrows" into the evolution of new systems formation.*

*In this connection the concept of hysteresis evolution is introduced that describes a "new" life of the products decomposition of the "old" systems. Hence it follows there exist the two strategies of evolution which are based on the postulates of the system quest for maximum security and zero risk. But if nature much like a man professes the risk and security strategy, then*

*cannot we assume that it possesses something embryonic that in the case of man it is denoted by the notion of reason?*

**A. N. Spaskov**, Docent, Ph. D., Senior Researcher of the Institute of Philosophy of the National Academy of Sciences of Belarus, the Chairman of the Scientific Seminar "Philosophic Problems of Natural History and Technology" of the Institute of Philosophy of the National Academy of Sciences of Belarus (2012)



*...One cannot reduce the activity of the living organism with its complexity and high level of structural and functional organization to the manifestation of ordinary laws of physics and mechanics. And yet Tribo-Fatigue initiated new studies that enhance our notions of the dialectical laws of life and open up the prospect of new*

*approaches in the development of measures for conservation and prolongation of man's life in certain conditions of one's habitation.*

**A. I. Kienya**, Professor, D. Sc., Head of the Department of Gomel Medical Institute (1998)

Received 29.06.2015