WORKING PLAN OF SCIENTIFIC COOPERATION

between the BIALYSTOK UNIVERSITY OF TECHNOLOGY, Bialystok, Poland, and the PIDSTRYHACH INSTITUTE FOR APPLIED PROBLEMS OF MECHANICS AND MATHEMATICS OF THE NATIONAL ACADEMY OF SCIENCES OF UKRAINE, Lviv, Ukraine, for years 2022-2025

According to the Agreement of Cooperation signed on March 5, 2013 in the areas of Science, Technology, and Methodology between the **Bialystok University of Technology**, Bialystok, Poland, and the **Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of the National Academy of Sciences of Ukraine**, Lviv, Ukraine, the cooperation between the two Institutions (in what follows – **Parties**) is to be performed within the framework of the following subject matter: **Identification of Thermomechanical Properties of Heterogeneous Materials.** Aspects of cooperation and expected results are the following:

1. Development of methods to obtain information on the effective thermomechanical properties of structurally heterogeneous solids, under the lack or insufficiency of information on thermal loadings on the surfaces of elastic heterogeneous solids.
2. Development of a method for determining macroscopic profiles of material modules depending on spatial coordinates.
3. Development of a method for analyzing the thermomechanical properties of protective coatings;
4. Development of an image analysis algorithm, among others breakthroughs, wear surface.
5. Carrying out analyzes and applying image processing methods that enable the use of a non-linear (multifractal) algorithm.
6. Development of coupled mathematical models of the process of transient heat generation due to friction (in systems such as brakes, clutches, etc.).
7. Carrying out numerical analysis for selected materials of friction couples and operating parameters.
8. Publication of the results obtained.
9. Searching for areas of joint research within projects financed from external funds.
10. The financial rules related to the mobility will be established individually before trips.

Both **Parties** agree to treat the information and results of the collaboration as confidential within the indispensable range. The confidentiality obligation shall not extend to publishing results of research in the form of conference papers and articles in scientific periodicals. Moreover, the confidentiality obligation shall not extend to information which the receiving

Party is compelled to release by law or legal process. In each case, one party shall inform the other in writing about the need to disclose confidential information and results.

Both **Parties** save the rights of the intellectual property which was in its possession before signing this Agreement. The right of property of any materials, information and results from realization of activities, set in the Working plan, shall belong to the **Parties** according to their contribution into a common research.

The participants of the Cooperation Program from both **Parties**:

Bialystok University of Technology:
1. Prof. dr hab. Oleksandr Jewtuszenko
2. Prof. dr hab. inż. Michał Kuciej
3. Prof dr hab. Roman Kulczycki
4. Prof. dr hab. Georgij Sulym
5. Dr hab. inż. Piotr Grześ, prof. PB
6. Dr inż. Katarzyna Topczewska
7. Dr inż. Jakub Augustyniak
8. Dr inż. Izabela Zgłobicka
9. Mgr inż. Piotr Sebestianiuk
10. Mgr inż. Sebastian Lubowicki
11. Mgr inż. Paweł Mościcki
12. Mgr inż. Przemysław Zamojski

Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of the National Academy of Sciences of Ukraine:
1. Acad., Prof. Roman M. Kushnir, DSc.
2. Anatoliy Yasinskyy, DSc.
3. Viktor Shevchuk, DSc.
4. Bohdan Kalynyak, Ph.D.
5. Lesya Postolaki, Ph.D.
6. Zoya Prytula, Ph.D.
7. Mykola Yuzvyak, lead. math.
8. Olga Tuzhelyak, Ph.D. sudent
9. Dmytro Boiko, Ph.D. student
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On Behalf of Bialystok University of Technology

Coordinator:

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BIALYSTOK UNIVERSITY OF TECHNOLOGY

Date: 2022 -02- 09

On Behalf of Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of the National Academy of Sciences of Ukraine

Coordinator:

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Institute Authorities
Director of the Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of the National Academy of Sciences of Ukraine,
Acad., Prof. Roman M. KUSHNIR, DSc.

Date: 2022-02-11