Report on the scientific activities of the University for 2017

pro-rector on scientific work,

Doctor of Technical Sciences, Professor S.V. Myllin

Scientific activity is one of the main directions of work of Dnipropetrovsk National University of Railway Transport named after academician V. Lazaryan. The University has 32 scientific divisions: 3 research institutes, 1 testing center and 1 testing laboratory, 3 design and technological bureaus, 21 branch scientific research laboratory, scientific and technical library, 2 scientific museums and an exhibition of scientific achievements of the university.

In 2017, 19 scientific divisions of the university, working on the implementation of state budget and research contracts, participated in the research.

4 new scientific subdivisions have been created, including 2 scientific research institutes and 2 research laboratories.

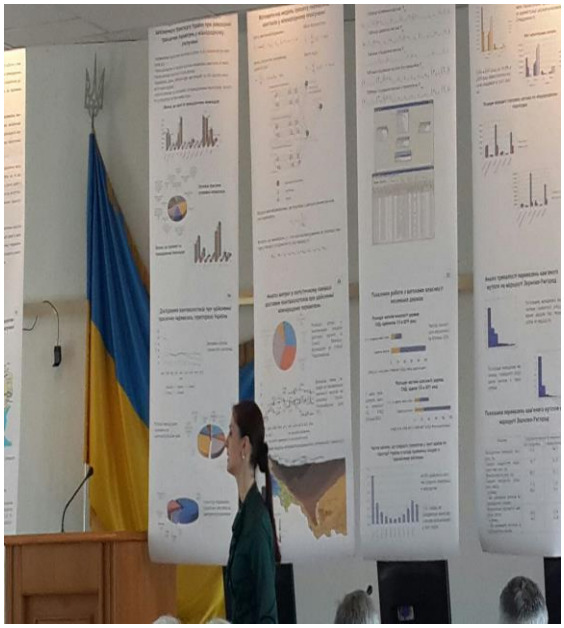
In recent years, against the backdrop of a decrease in the amount of income to the special fund, the reform of individual scientific divisions and the bringing in of the staff schedules of the special fund units to actual volumes, the number of full-time scientific workers has significantly decreased.

The staff of full-time scientific workers is 89 people, among whom the number of young scientists at the university does not change significantly and is about 32%.

Training of scientific personnel is carried out through postgraduate and doctoral studies. At the University there are 3 specialized scientific councils for defending doctoral and candidate dissertations in 8 specialties.

In postgraduate study 59 post-graduate students were trained. 8 doctoral students were trained in the doctoral program. In the specialized

scientific councils of the University 14 theses are defended, 4 of them are dissertations of the Doctor of Science, 10 theses of the Candidate of Sciences. Employees of the University in 2017 defended 12 theses, including 4 doctoral and 8 candidate.

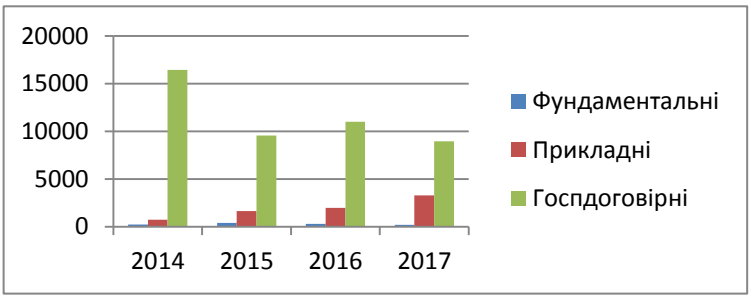


Funding of scientific activities at the university is carried out at the expense of the general fund of the state budget and at the expense of domestic and foreign customers. In all, 180 GDR were implemented at the university, of which 6 are financed from the general fund of the state budget: 3 transitional projects, one of which is carried out by a team of young scientists (headed by Prof. Bosoy DO), and 3 new ones, whose funding for competitive selection began in 2017, as well as 172 works commissioned by enterprises.

The actual amount of funding research work in 2017 was 12.47 million. Гнн., Including the total amount of funding research work from the general fund of the state budget was 3470000. Грн. and the volume of financing of contract scientific research amounted to about 9.0 million UAH.

In 2017 there was an increase in the volume of R & D funding after four years of recession. The growth was achieved due to the gradual resumption of work for foreign companies. The share of R & D funding from the general fund is about 25%. The main customers are enterprises, institutions and organizations of Ukraine, Kazakhstan, the Czech Republic, South Korea, Latvia and Poland.

In the framework of international scientific activities 8 projects and works were carried out: 1 international grant within the framework of Ukraine-Belarus program of bilateral cooperation and 7 research works.



The subject of research works is related to the development and testing of rolling stock, locomotive traction, railway infrastructure, the operation of railway transport, the economy, ecology, electrification of the railway transport. The main scientific works are related to the priority areas of research identified by the relevant Law of Ukraine and the Resolution of the Cabinet of Ministers. In 2017, 2 applied research projects were completed, which were financed from the general fund of the state budget

R & D "Improvement of technical support and technology of grain export cargo transportation".



The research is aimed at solving scientific and applied problems to improve the efficiency of grain transportation to seaports for export through the creation of innovative rolling stock, the development of railway transport infrastructure and transportation technologies.

Authors in the implementation of this project for the first time created:

- Refined forecasts of the need for the rolling stock of railways to ensure the export of grain;

- statistical models of finding wagons in different phases of service;

- simulation models of wagon movement during transportation of grain cargoes to ports for research of various transportation technologies;

- new operational characteristics of rail car parts, made of high-strength steels

- technologies for depositing hard and wear-resistant coatings of rolling stock elements due to the modification of the metal matrix by the particles of the dispersed phase.

Results of research:

Scientific publications, articles - 30, including

- articles are indexed by Scopus or WoS-6 databases,

- articles in magazines included in the list of professional publications of Ukraine and other publications - 24

Printed textbooks, manuals, monographs - 3

Received patents (copyright certificates) - 5

Two doctoral dissertations were defended.

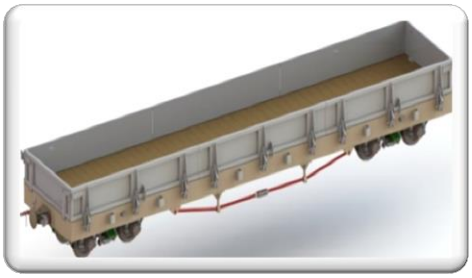
The model models of wagons and cisterns for grain transportation are made.

The title of the work is "Development of innovative design of freight wagons for mountain railways taking into account the latest materials and application of modern welding technologies"

The purpose of research is the development of innovative designs of freight cars for mountain narrow-gauge railways, taking into account the latest materials and the use of modern welding technologies on the basis of analysis and creation of freight wagon structures, taking into account the experience of performing theoretical and experimental studies of new railway equipment and using the latest design methods and prospective construction materials together with the use of modern welding technologies.

Obtained scientifically substantiated results on the choice of design parameters in general; methods for applying composite electrolytic coatings have been developed; on the basis of the Bayesian method, a combination of models with freight wagon failures and a change in the physicomechanical characteristics of the component parts and materials was made; a method is proposed that allows

to carry out experimental processing of empirical data, as well as a functional that, based on a set of prescribed criteria, assesses the adequacy of the constructed mathematical model; To determine the optimal period for carrying out current, depot and capital repairs of freight cars, a maintenance and repair system was built, which differs significantly from the existing system; a methodology for the creation of flexible car-repair streaming technologies was proposed, and their advantage was com- plexively justified and scientifically confirmed in comparison with the "rigid" flow lines, which laid the foundations of the theory of flexible car-repair production. The prototypes of freight cars and their elements are made.



Results of research:

Scientific publications, articles - 33, including:

- articles indexed by Scopus or WoS-4 databases

- articles in magazines included in the list of professional publications of Ukraine and other publications - 29

Printed textbooks, manuals, monographs - 4

Received patents (copyright certificates) - 10

1 doctoral dissertation is defended.

A significant amount of scientific work carried out by the university, related to the testing of railway rolling stock and transport infrastructure. In particular, tests were carried out of the modernized electric train Hyundai, the Polish tram firm PESA for Kiev, technical diagnostics and design of a number of damaged strategic bridges in the East of the country, a project of a residential 32 apartment

house for military personnel in the city of Dnepr and others was developed.

СТРОИТЬ — ЗНАЧИТ ЖИТЬ

В понедельник на Днепропетровщине Президент Украины Петр Порошенко открыл детскую больницу нового поколения, вручил военным ключи от квартир и государственные награды — активным участникам Революции достоинства

The implementation of research on the order of foreign companies by 2014 was one of the main sources of funding for the scientific departments of the university. The share of these revenues reached 40%. In recent years, there has been a significant reduction in the volume of such work in connection with the closure of the markets of the Customs Union countries. The University searches for new customers. One of the most significant events were: the visit of Professor Mamylin S.V. to the Iranian University of Science and Technology, g. Tehran (Iran University of Science & Technology) and the conclusion of the Treaty on

Cooperation and implementation of joint research and scientific conferences; The cooperation with the Czech Technical University (the coordinator from Chechnya, Professor Jan Kalyvoda) in the field of development of bench equipment for the research of rail vehicles has been started.

In 2017 the university took part in 8 international and domestic exhibitions. The University's developments were presented at exhibitions: Modern educational institutions-2017 (Kiev), Railway technology and transport technologies-2017 (Dnipro), TransRail of Ukraine-2017 (Odessa, International Forum "Innovation" Market "(Kiev), ASIA RAIL - 2017 (Tehran, Iran), InterpipeTechFest - 2017 (the city of the Dnieper).

According to the total number of points, our university got the first place in the inter-university tournament "Battle for High School".

Based on the results of the exhibitions, the University received five awards.

In 2017, the University hosted 11 international and all-Ukrainian scientific events.

In 2017, the University renewed the Certificate of a scientific institution, which is supported by the state and entered the relevant Register of Scientific Institutions.

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

СВІДОЦТВО

№ 02325 Серія ВВ

м. Київ 23 листопада 2017 р.

Цим підтверджується, що

Дніпропетровський національний університет залізничного транспорту імені академіка В. Лазаряна Міністерства освіти і науки України

(вул. Лазаряна, 2, м. Дніпро, 49010)

внесено до Державного реєстру наукових установ, яким надається підтримка держави

Свідоцтво чинне до 23 листопада 2020 р.

Заступник Міністра М. В. Стріха

The University is the founder of 8 printed publications. Work continues on the registration of publications in international science-based databases. The journal "Anthropological dimensions of philosophical research" is included in the Web of Science database, the journal Science and Transport Progress is under monitoring in SCOPUS.

In 2017, the university staff published monographs - 15, textbooks and teaching aids - 13, articles in publications included in SCOPUS and the Web of Science - 34.

By 2017 received 64 security documents, including 3 patents for inventions. 74 applications for patents and certificates on registration of copyright are submitted.

The University takes an active part in the work of the working groups of the National Committee for the Revival of Industry, is headed by the Prime Minister and cooperates with the leading manufacturing enterprises to improve the machine-building and other branches of the Ukrainian economy.

The university trains 3105 full-time students. 658 students were involved in scientific research work, mostly 3-5 courses.

Students of the University received 15 prizes: 6 wins in the second stage of the All-Ukrainian Student Olympiads and 9 winners at the All-Ukrainian

competitions of student scientific works. The University was the base for holding the All-Ukrainian Student Olympiad in the direction of information technology.

Придніпровська магістраль 9/3

КАЛЕЙДОСКОП

Граніт науки

ЗАВЖДИ ПОПЕРЕДУ

ПРЕДСТАВНИКИ ДНІПРОПЕТРОВСЬКОГО НАЦІОНАЛЬНОГО УНІВЕРСИТЕТУ ЗАЛІЗНИЧНОГО ТРАНСПОРТУ ІМЕНІ АКАДЕМІКА В. ЛАЗАРЯНА ПЕРЕМОГЛИ У ЩОРІЧНОМУ РЕГІОНАЛЬНОМУ КОНКУРСІ «КРАЩА РАДА МОЛОДИХ ВЧЕНИХ» ЗА ПІДСУМКАМИ 2017 РОКУ

Участь у ньому взяли 9 інноваційних проектів. Серед критеріїв, за якими оцінювали діяльність науко-вих рад, — активність в українських та закордонних конкурсах, стипендіях; академічна мобільність, закордонні стажування; активність у ЗМІ; впро-вадження наукових розробок в регіоні. До речі, це вже не перша перемога вишу в цьому конкурсі, щороку він потрапляє у список призерів.

А проект голови Ради вчених ДІІТу Інни Гордєєвої, присвячений впровадженню транзитної системи у професійних навчальних заклa-дах, отримав фінансову підтримку на реалізацію в рамках конкурсу «Молоді вчені — Дніпропетровщині». За її словами, перший крок вже зроблено — проект презентова-но керівникам коледжів, технікумів та профучилищ, регіону, яких в Дніпропетровській області налічується 53. «В європейській практиці подібні заходи та університети активно роз-виваються за рахунок грантів. Вони полягають... матеріально-технічне забезпечення, закуповують облад-нання, роблять ремонти, запроваджу-ють нетрадиційне енергозбереження, розвивають академічну мобільність викладачів та студентів для обміну досвідом за кордоном. Подібну систе-му можна використовувати і у нас», — пояснює Інна Олександрівна.

Тетяна ПАВЛЮЧЕНКО,
«Придніпровська магістраль»

ВСІ ПРИЗОВІ МІСЦЯ — У СТУДЕНТІВ ДІІТУ

20 СІЧНЯ НА БАЗІ ДНІПРОПЕТРОВСЬКОГО ОБЛАСНОГО ІНСТИТУТУ ПІСЛЯДИПЛОМНОЇ ПЕДАГОГІЧНОЇ ОСВІТИ ВІДБУВСЯ ОБЛАСНИЙ ЕТАП VIII МІЖНАРОДНОГО МОВНО-ЛІТЕРАТУРНОГО КОНКУРСУ УЧНІВСЬКОЇ ТА СТУДЕНТСЬКОЇ МОЛОДІ ІМЕНІ ТАРАСА ШЕВЧЕНКА

Дніпропетровський на-ціональний університет Залізничного транспорту імені академіка В. Лазаряна (ДІІТ) у підгрупі «Негуманітарні вузи» пред-ставляли шість студентів. Учасники конкурсу з різних технічних вишів Дніпра мали розкрити свої знання української мови у творі на тему «Риси національного характеру».

Найкращою визнано роботу студентки-третьокурсниці факуль-тету «Технічна кібернетика» ДІІТу Ірини Сансєєво. Друге місце посів теж ДІІТівець, майбутній кібернетик Олександр Беляєв. Виявилося, що непогано володіє українською мовою і студентка 4-го курсу цього ж навчального закладу Оксана Сметура, яка здобуває освіту за спеціальністю «Управління енерге-тичними процесами».

Таким чином вихованці стар-шого викладача кафедри «Українознавство» Світлани Пайдан вибороли всі призові місця на конкурсі в своїй підгрупі. Переможниця Ірина Сансєєва вільне участь у всеукраїнському етапі цього конкурсу.

Тетяна ТАНАСІЄНКО,
«Придніпровська магістраль»

In 2017, young scientists of the University have significant achievements. The research department and the Council of Young Scientists of the university contributed to participation in competitions and grants of regional, state and international levels. 10 scientific ideas for implementation in 2017 at the expense of the regional budget are presented for the competition of scientific projects "Young Scientists - Dnepropetrovsk" and "Best Young Scientist of the Dnepropetrovsk region". 20 young scientists of the University took part in these competitions.

Antonov Andrey (Head of the Research Laboratory "Electricity and Energy Saving") received a material incentive in the amount of 35 thousand UAH. for the implementation of an innovative project.

Two works were presented to receive the Prize of the Verkhovna Rada of Ukraine for the most talented young scientists (the collective of the authors of the "ATS" department and the collective of the authors of the department of "Intelligent power supply systems", ONIL "Wagons" and PKTB). One of these works was held in the final review, and already in 2018 the results will be announced.

Five young scientists of the University receive scholarships of the Cabinet of Ministers of Ukraine for young scientists.

The Council of Young Scientists, in the framework of cooperation with the international development project of the United Nations and the EU, "Local development focused on the community," conducted a series of trainings aimed at preparing projects for grants of various levels.

During the reporting year, young scientists conducted 8 scientific conferences.