

**УКРАЇНСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ ЗАЛІЗНИЧНОГО  
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ТРАНСПОРТНА АКАДЕМІЯ УКРАЇНИ  
ПІДЙОМНО-ТРАНСПОРТНА АКАДЕМІЯ НАУК УКРАЇНИ  
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ПАТ «УКРЗАЛІЗНИЦЯ»**

**Тези доповідей  
міжнародної науково-технічної конференції**

**«ТЕХНОЛОГІЇ ТА ІНФРАСТРУКТУРА ТРАНСПОРТУ»**

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Збірник містить тези доповідей науковців вищих навчальних закладів України та інших країн, підприємств транспортної та будівельної галузі за такими секціями: технології виготовлення та відновлення виробів транспортного призначення; проектування, виробництво та сервіс засобів транспорту; транспортні технології та логістика; проблеми безпеки на транспорті, в промисловості та інфраструктурі; захист довкілля, екологічна безпека та ресурсозберігаючі технології; забезпечення конкурентоспроможності підприємств транспорту і промисловості; інтеграційні процеси фінансово-економічного розвитку транспортної галузі.

## **ЗМІСТ**

### **СЕКЦІЯ**

#### **«ТЕХНОЛОГІЇ ВИГОТОВЛЕННЯ ТА ВІДНОВЛЕННЯ ВИРОБІВ ТРАНСПОРТНОГО ПРИЗНАЧЕННЯ»**

|                                                                                                                                                                                                                         |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <i>М. В. Загирняк, В. В. Драгобецкий, Е. А. Наумова,<br/>С. В. Шлык, А. А. Шаповал</i><br><b>МЕТОД ОПРЕДЕЛЕНИЯ ЭКСПЛУАТАЦИОННОЙ<br/>ДОЛГОВЕЧНОСТИ ПЛАСТИЧЕСКИ ДЕФОРМИРУЕМЫХ<br/>ЛИСТОВЫХ ДЕТАЛЕЙ</b>                    | 29 |
| <i>О. Г. Чернета, В. І. Кубіч, Р. Г. Волощук</i><br><b>ДОСЛІДЖЕННЯ МІКРОТВЕРДОСТІ ДЕТАЛЕЙ ІЗ СТАЛІ<br/>45 ДО І ПІСЛЯ ЛАЗЕРНОГО БОРУВАННЯ</b>                                                                            | 31 |
| <i>О. Г. Чернета, В. І. Кубіч, Р. Г. Волощук</i><br><b>ПОВЕРХНЕВИЙ ШАР ДЕТАЛЕЙ ІЗ СТАЛІ 45 ПІСЛЯ<br/>БОРУВАННЯ З НАСТУПНОЮ ЛАЗЕРНОЮ ОБРОБКОЮ</b>                                                                        | 33 |
| <i>С. В. Воронін, Б. С. Асадов</i><br><b>МАТЕМАТИЧНА МОДЕЛЬ ДЛЯ РОЗРАХУНКУ ОСНОВНИХ<br/>ПАРАМЕТРІВ ЗМАЩУВАЧІВ АЕРОЗОЛЬНОГО ТИПУ</b>                                                                                     | 35 |
| <i>А.О. Задорожний, А. П. Ковревський, Ю. В. Човнюк,<br/>М. П. Ремарчук</i><br><b>ОСОБЛИВОСТІ ТЕЧІЇ РІДИН ЗМІННОЇ В'ЯЗКОСТІ ПО<br/>ТРУБОПРОВОДУ РІЗНОЇ ФОРМИ ПОПЕРЕЧНОГО ПЕРЕТИНУ</b>                                   | 37 |
| <i>О. В. Устенко, С. С. Тимофеев, Н. Р. Огульчанська,<br/>М. В. Грибанов, Д. Г. Воскобойников</i><br><b>АНАЛІЗ РУЙНУВАННЯ ГОЛОВОК РЕЙОК</b>                                                                             | 39 |
| <i>О. А. Охріменко, А. В. Мініцький, М. О. Сисоєв,<br/>Н. В. Мініцька</i><br><b>ПОВЕРХНЕВЕ ЗМІЦНЕННЯ ПОРОШКОВИХ<br/>ЗАЛІЗОВУГЛЕЦЕВИХ СПЛАВІВ</b>                                                                        | 40 |
| <i>В. О. Стефанов, Д. В. Онопрейчук, В. В. Пащенко,<br/>Г. О. Радіонов</i><br><b>ОБҐРУНТУВАННЯ РАЦІОНАЛЬНОЇ КОНЦЕНТРАЦІЇ<br/>ПРОТИЗНОШУВАЛЬНОЇ ПРИСАДКИ В ГІДРАВЛІЧНИХ<br/>ОЛИВАХ ВИРОБІВ ТРАНСПОРТНОГО ПРИЗНАЧЕННЯ</b> | 42 |

*Л. Ф. Коженювскі*

**ЗВ'ЯЗОК НАУК ПРО БЕЗПЕКУ З ПРИРОДНИМИ НАУКАМИ** 301

*А. С. Беликов, А. В. Пилипенко, Н. Н. Налісько, В. А. Шаломов*

**РАДІАЦІОННА ОБСТАНОВКА НА УЧАСТКЕ  
АВТОДОРОГИ Н-08 ДНЕПР-КАМЕНСЬКЕ ПРОХОДЯЩЕЙ  
ВБЛИЗИ ХВОСТОХРАНИЛИЩ УРАНОВОГО ПРОИЗВОДСТВА  
ПО «ПХЗ»** 303

*К. В. Данова, М. В. Хворост*

**ЗАБЕЗПЕЧЕННЯ БЕЗПЕКИ ПРАЦІ ОСІБ ІЗ ІНВАЛІДНІСТЮ  
В УМОВАХ ТРАНСПОРТНОГО ПІДПРИЄМСТВА** 305

*М. В. Хворост, В. В. Малишева*

**ДОСЛІДЖЕННЯ ЕФЕКТИВНОСТІ ЗАСТОСУВАННЯ  
ЗАХИСНИХ ЕКРАНІВ СКЛАДНОЇ КОНСТРУКЦІЇ У  
БОРОТБІ ІЗ АКУСТИЧНИМ ЗАБРУДНЕННЯМ  
ЗАЛІЗНИЧНИХ КОЛІЙ** 307

*Д. І. Буліч, С. Ю. Сапронова, В. П. Ткаченко*

**ВПЛИВ НЕВИЯВЛЕНИХ ДЕФЕКТІВ ВАНТАЖНИХ ВАГОНІВ  
НА БЕЗПЕКУ РУХУ** 309

*Ю. Л. Фещук, С. В. Поздєєв, В. В. Ніженик*

**АДЕКВАТНІСТЬ ВИМІРЮВАННЯ У ФРАГМЕНТАХ  
ДЕРЕВ'ЯНИХ КОЛОН ПІД ЧАС ВОГНЕВИХ ВИПРОБУВАНЬ** 311

## **СЕКЦІЯ**

### **«ЗАХИСТ ДОВКІЛЛЯ, ЕКОЛОГІЧНА БЕЗПЕКА, РЕСУРСОЗБЕРІГАЮЧІ ТЕХНОЛОГІЇ»**

*Martijn Beerthuisen*

**WAYS TO IMPROVE THE EFFICIENCY OF DIESEL FUEL USE** 314

*O. Sushchenko, I. Trunina, O. Prokopishyna, N. Kozubova*

**ECO-FRIENDLY BEHAVIOR OF LOCAL POPULATION,  
TOURISTS AND COMPANIES AS A FACTOR OF  
SUSTAINABLE TOURISM DEVELOPMENT** 318

*А. А. Алексахин, А. В. Панчук, Л. А. Пархоменко, А. В. Беловол*

**ТЕПЛООТДАЧА В КАНАЛАХ СИСТЕМЫ ОХЛАЖДЕНИЯ  
ТЯГОВЫХ ЭЛЕКТРОДВИГАТЕЛЕЙ** 321

Opposite to water as a problem is something called water emulsification. Simply put, adding water to the fuel, but in such a way that it floats in the water in extremely small particles. Several scientists in the world are experimenting with this topic. Their goal is to make a machine that can emulsify water into diesel to the desired level, so as to enhance the combustion. Petronas University in Malaysia has a whole division dedicated to this subject. By emulsifying water into diesel, it has been proven that diesel becomes more powerful, and fuel reductions have been registered using this development. Big problem is that water has the tendency of not wanting to mix with fuel, as the density is different. A Dutch scientist, Mr. Wilko Pels has developed a working machine to accomplish this process. His development is called OCRI and consists of a machine that can inject water molecules under high pressure into the fuel. Important development in his invention is that he managed to keep the water afloat and emulsified in the fuel for a long period of time, whereas other developments only manage to keep the water in particle setting for a short period of time. Mr. Pels is now experimenting with adding fuel additives to the fuel/water mixture, as he wants to prevent the free-floating molecules to bind with each other and keep the bacteria inside the water molecules from growing. If he succeeds in this development, he will have the first fully operational unit in the world. This development of water emulsification causes a fuel reduction on trains and other engines of 2 till 5%. The system will be tested in Ukraine on diesel trains by adding the emulsification machine on the back of the diesel train during field tests. Alongside the field testing, a laboratory test will be conducted at Kharkov Railroad University on the new engine testing facility.

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## **ECO-FRIENDLY BEHAVIOR OF LOCAL POPULATION, TOURISTS AND COMPANIES AS A FACTOR OF SUSTAINABLE TOURISM DEVELOPMENT**

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Environmental protection today are not only the key to the implementation of sustainable development of society, but also the essential factor survival of manhood. Deforestation, destruction of the biosphere, exploitation of natural resources, harmful emissions, waste products and refuse of consumption disrupt the ecological and energy balance of the planet and lead to global climate change on the Earth, which every year becomes more tangible. The UN [1], published data that should draw the attention of the public and state bodies to the solution of problems of environmental protection.

While 3.5 billion people depend on oceans as a source of food yet oceans are used as waste and waste water dumps. Annually 4.8 to 12.7 million tones of plastic waste enters the ocean every year from inadequate waste management: over 80 per cent of the world's wastewater is released to the environment without treatment, 57 million years of life lost or lived with disability annually due to poor water, sanitation, hygiene and agricultural practices, 58 per cent of diarrheal disease due to lack of access to clean water and sanitation and a major source of child mortality. Many impacts of chemicals such as endocrine disruptors and developmental neurotoxicants and long-term exposure to pesticides on human health and well-being and biodiversity and ecosystems are still to be fully assessed 50 biggest active dump sites affect the lives of 64 million people, including their health and loss of lives and property when collapses occur. Children poisoned by mercury and lead develop problems in their nervous and digestive systems and kidney damage. 2 billion people are without access to solid waste management and 3 billion lack access to controlled waste disposal facilities. The global, international aviation industry presently accounts for 3% of carbon emissions worldwide and is rising fast. With all known approaches, including improving efficiency, emissions will be up 175% in the next 20 years particularly because of the ever increasing number of long haul flights [1].

Back in 1987, the UN General Assembly [2] formed the concept of sustainable development of mankind, which implies the rational use of natural resources to save the Earth for future generations. Since then, it has not lost its relevance - the concept of sustainable development is actively discussed by world leaders today.

Eco-friendly behavior is one of the practical applications of the concept of sustainable development of mankind, this is the principle of consumer behavior that can reduce, minimize or not cause any damage to the ecosystem or the environment.

As one of the world's largest economic sectors, Travel & Tourism creates jobs, drives exports, and generates prosperity across the world. The sector is shown to account for 10.4% of global GDP and 313 million jobs, or 9.9% of total employment, in 2017 [3]. However, large-scale and industrialized international tourism has already and continues to have a very unfavorable, often destructive effect on the natural ecosystems of many tourist regions. Especially it concerns beach and hunting tourism. For example, the continuous construction of coasts by hotels, boarding houses for living, as well as the concentration of a huge number of tourists in the narrow coastal zone, led to significant pollution not only of the coast, but also coastal waters. This led to negative changes in agriculture and to a worsening of the social situation.

Nowadays, as opposed to large-scale tourism, ecologically responsible tourism (ecotourism) is a local idea of creating a balance between the economic benefits derived from recreation in nature and the ecological safety of recreational areas is becoming increasingly popular as part of the global idea - preserving the nature of the planet as the basis of life on it.

The Nature Conservancy promotes the definition of ecotourism [4] as environmentally responsible travel to natural areas, in order to enjoy and appreciate nature (and accompanying cultural features, both past and present) that promote

conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local peoples as it was proposed by the World Conservation Union (IUCN).

In the ecological plan, the scale of tourism or the motivation of travelers are not so significant, as the impact of their travel. The later is primarily determined by the level of organization of the trip. Tourism and the environment are closely interrelated. Natural and artificial environments provide tourist attractions, and tourism development can have both (positive and negative) impacts on the environment. The development of sustainable tourism depends on the protection of natural resources for tourism. Partners for the development of sustainable tourism are commercial tourism enterprises, environmentalists, community groups and leaders, as well as the local population [5].

But any measures to protect the environment will not yield an effective result without changing the consumer orientation of human and the formation of a high ecological and moral culture. In this connection, the question of necessity of humanization of the society attitude to nature acquires the status of the most important in the sphere of solving the problem of interaction between society and nature for preventing an ecological catastrophe.

[1] UN General Assembly. Dimensions of Pollution. <http://web.unep.org/environmentassembly/marine>

[2] Shaker, R.R. (2015). The spatial distribution of development in Europe and its underlying sustainability correlations. *Applied Geography*, 63, 304-314. doi.org/10.1016/j.apgeog.2015.07.009 pg305

[3] TRAVEL & TOURISM GLOBAL ECONOMIC IMPACT & ISSUES 2018 <https://www.wttc.org/-/media/files/reports/economic-impact-research/documents-2018/global-economic-impact-and-issues-2018-eng.pdf>

[4] International Union for Conservation of Nature <https://www.nature.org/greenliving/what-is-ecotourism.xml>

[5] Sushchenko, O. A., Trunina, I. M. (2015). Formation of an Approach to the Clustered Management of Foreign Economic Activity of Enterprises in the Conditions of Global Competition. *Business Inform*, 2015(1), 91-96.