

FOMIN Oleksij

Doctor of Technical Sciences, Professor, active member of the Transport Academy of Ukraine.

Professor of the Department of Wagons and Wagon Facilities of the State University of Infrastructure and Technologies.



Biography

He was born in February 15, 1985 in Lozova. In 2003 he completed the vocational technical school No. 23 in Kharkiv and received the profession of railway car inspector and repairman. In 2007 he completed the Ukrainian State Academy of Railway Transport with honors in the study program "Rolling Stock and Special Technique of Railway Transport" and obtained the qualification of master's degree in railway transport. In 2009, there he received a complete higher education with honors in the study program "Accounting and Auditing" and obtained the qualification of an economist. He passed PhD defense in the program subject area 05.22.07 – the railway rolling stock and train traction in January 2011. He received an assistant professor certificate in September 2014. In May 2016 he defended his thesis for the degree of Doctor of Engineering Sciences in the program subject area 05.22.07 – the railway rolling stock and train traction. Since 2016, he has been working as a professor at the department "Wagons and Wagon Facilities". In 2019, he was awarded the academic title of professor.

Scientific background

Research interest area: structural and parametric analysis and synthesis of transport engineering structures, as well as their functional and cost optimization (cost engineering). He is directly engaged in improving the technical, economic and operational indicators of the railway rolling stock in order to strengthen the position of Ukraine in the world markets of transportation and transport machine building, as well as reducing the cost of updating the railway fleet and reducing the cost of rail transportation.

He was and is a member of specialized academic councils for the defense of doctoral and candidate's theses at the State University of Infrastructure and Technologies, Volodymyr Dahl East Ukrainian National University and Ukrainian State University of Railway Transport. He also participates in the training of highly qualified personnel of the Ministry of Education and Science and the National Academy of Sciences of Ukraine as the head of applicants for scientific degrees and an official opponent, chairman or member of specialized academic councils for one-time defenses.

In his scientific activities he did the following:

- proposed an ideal freight wagon design and an idealistically directed methodology for the evolution of wagon structures;
- formed the scientific and applied foundations of the variant design of freight wagons with ensuring competitive conditions when choosing technical solutions at all stages of their life cycle, from pre-design to modernization in operation including the development and use of the corresponding structural-functional and variational (in the form of "And-Or" - trees) descriptions;
- developed a scientific and applied framework for the functional and cost analysis (cost engineering) of freight wagon designs;

- proposed a method for optimizing the freight wagons structural components, the use of which will allow creating equal strength versions of them in the form of beams of uniform resistance to the operational loads total effect;
- created a complex of multi-factor mathematical dependencies of the main indicators and parameters of the basic elements of the bearing systems of freight wagons and their promising performance, which allows to predict their resource and economic feasibility of functioning;
- proposed several designs for freight wagons of the future (including high-speed ones, made of round pipes, and others), developed appropriate prototypes and substantiated the prospects of their implementation scientifically;
- substantiated potential directions and managerial models for increasing the efficiency of the freight wagon use scientifically, which take into account the features of their designs and stages of the life cycle;
- 2 theses for the degree of candidate of technical sciences were defended under his supervising.

Indexing and Ratings

1) **Scopus: h-index = 24, number of citations = 1502:**

<https://www.scopus.com/authid/detail.uri?authorId=56422110000>

2) **Google Scholar: h-index = 39, number of citations = 2958:**

<https://scholar.google.com.ua/citations?user=8nAQWbUAAAAJ&hl=ru>

3) he takes **first place in the All-Ukrainian ranking** of scientists in accordance with the information of the system "Bibliometrics of Ukrainian science" in the section "Transportation".

4) ResearchGate: https://www.researchgate.net/profile/O_Fomin

Practical experience

A car-building production was organized at PSC DMP with his direct participation as the chief designer (2011-2013). At this time for two years, all works from setting the technical task (to achieve an ambitious goal: organizing competitive car building at a metallurgical plant) to reaching its design capacity - building 100 open wagons per month have been made. Achieving this goal included: designing own models of open wagons with the development of design and technological documentation; planning and creation of car building production (main and procuring ones on the basis of departments of completely different directions); obtaining international permits for the production of open wagons, etc.

He is the authorized representative of the technical standardization committee TK-83 "Wagons", which operates under the State Enterprise "Ukrainian Scientific Railway Car Building Research Institute".

He works in several publications and journals (including scientific, professional, English-speaking ones, and those included in Scopus database), as an editorial board member and reviewer.

Distinctions and awards: the scholarship from the Cabinet of Ministers of Ukraine for young scientists; the Verkhovna Rada of Ukraine scholarship for the most talented young scientists; the Kiev mayor's prize for the special achievements of youth in the development of the capital of Ukraine - Kiev hero city and the Prize of the President of Ukraine for young scientists.

He has more than 500 scientific and methodological papers, including: 2 sole monographs and 4 multi-authored monographs (three of which are published in English); 54 publications in publications indexed in Scopus database (**30 publications** of which are in **SCOPUS journals, Q2**) more than 120 articles in journals included in the list of professional publications of Ukraine; 5 study guides; 15 patents of inventions, more than 50 useful model patents and 1 copyright certificate, and more than 10 completed research works by state and contractual orders.