

A list of the main scientific results that made it possible to achieve the impact of

The main activity of the laboratory, which has an impact on the development of advanced science, is the results of scientific and experimental research on rail transport. A significant part of the scientific and experimental research carried out by the laboratory is aimed at improving the processes of performing and processing scientific research, improving existing railcar designs, creating new and modernising existing types of rail transport and their components to improve and enhance technical characteristics.

In 2020-2024, the laboratory obtained the following main scientific results:

- 1 monograph was published in Ukraine;
- 1 article indexed in Scopus and/or WoS in a Q2 scientific journal was published;
- 1 article indexed in Scopus and/or WoS in a Q3 scientific journal was published;
- 2 articles indexed in Scopus and/or WoS in scientific journals without a quartile were published;
- 24 articles were published in professional scientific journals of Ukraine of category B;
- three patents of Ukraine for utility models were published;
- six certificates of copyright registration for a literary work of a scientific nature were obtained;
- two decisions on state registration of the Agreement on transfer (alienation) of property rights to computer programs were registered;
- participated in the development of 2 R&D reports.

In particular, scientifically substantiated and proven, useful methodological and technical developments are: development of a method for assessing braking processes taking into account the results of experimental studies; development of an improved calibration scheme for strain gauges used during scientific and experimental studies on the impact of rolling stock on the railway track; improvement of the procedure for studies on the impact of rolling stock on the railway track; development of software for searching for a rational mode of operation of metro vehicles on a run; improvement of the methodology for determining the fatigue resistance factor of a freight car structure; substantiation of comprehensive studies of the strength qualities of freight car structures; development of a procedure for calculating the braking efficiency of rail mining vehicles; determination of the maximum permissible speeds of rail mining transport.

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