

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

1. Improving the design of freight and special rolling stock.
2. Development of scientific fundamentals for technical diagnostics of freight cars.

The main activity of the laboratory, which makes an impact on the development of advanced science, is the results of theoretical and experimental studies of freight and special rolling stock, their components and parts. A significant part of the scientific and experimental research performed by the laboratory is aimed at improving the design of freight and special rolling stock, as well as at developing the scientific principles for technical diagnostics of freight cars.

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

- 2 articles indexed in Scopus and/or WoS in scientific journals without quartile were published;
- 10 articles were published in professional scientific journals of Ukraine of category B;
- 51 research and development reports were drawn up and finalized.

In particular, scientifically grounded and proven, useful methodological and technical developments are: improvement of the strength qualities of flat cars; determination of the strength qualities of the bearing structure of a covered railcar; determination of the dynamic load of the bearing structure of a covered railcar during the transportation of military equipment; determination of the dynamic load of the loading of a 1CC container during transportation by rail ferry on a roll-trailer; development of technical requirements for new generation dump cars; development of an algorithm and software package for determining the reliability indicators of freight cars; justification of the need to create a specialized open-top car for the transportation of iron ore pellets; improvement of the methodology for performing research and development work on technical diagnostics.

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