

ABSTRACTS OF D.SC. AND PH.D. THESES

*Selected abstracts of D.Sc.
and Ph.D. theses submitted
at Russian transport universities*

Gulyamov, K. Kh. Energy unit of an electric vehicle with a system of multichannel DC voltage conversion. Abstract of Ph.D. (Eng) thesis. Moscow, RUT publ., 2018, 24 p.

In the course of the study, the structure and the scheme of the reversible DC-DC converter (OPPN) were determined. A methodology for calculating the parameters of main components of OPPN for the traction electrical system of an electric vehicle and the mathematical model of OPPN as part of the traction electrical system of an electric vehicle are developed. The efficiency of a high-voltage electric drive with the use of OPPN in the power plant of an electric vehicle and the use of calculated and experimental data were determined.

Klimova, N. V. Substantiation of the technology of shipping containers from logistic terminals to sea ports of transport nodes. Abstract of Ph.D. (Eng) thesis. St. Petersburg, PGUPS publ., 2018, 16 p.

The scientific novelty of the study is to create a methodology that helps to choose a way to deliver a batch of containers from the rear logic terminal to the seaport based on mathematical modeling and a comparative economic evaluation of the delivery technology for independent transport participants. At the same time, the variants with the use of separate groups of cars, block trains and motor vehicles were calculated, the proposals for ensuring reliability of train traffic on schedule due to normalization of duration of the main elements of the technological model were justified; a scheme for informational interaction between automated systems of Russian railways, customs authorities and customers of the container network was developed.

Nagornaya, N. V. Formation of cost-effective strategies for gradual development of the shape and power of regional multimodal transport corridors (RMTC) of less developed areas. Abstract of Ph.D. (Eng) thesis. St. Petersburg, PGUPS publ., 2018, 17 p.

The author proposes a concept of designing economically efficient RMTC for linking natural resource centers to a backbone transport network, providing for a four-stage settlement procedure.

Economic and mathematical models have been developed that make it possible to realize the process of forming a multitude of possible variants of the layout and capacity of RMTC in order to achieve the set goals, the methodology for finding economically efficient corridors with the subsequent formation of optimal strategies for their step-by-step development, technology for implementing techniques based on RMTC examples related to natural resource centers and underdeveloped regions of the Far Eastern Federal District.

Pokrovskaya, O. D. Complex estimation of transport-warehouse systems of railway transport. Abstract of D.Sc. (Eng) thesis. St. Petersburg, PGUPS publ., 2018, 32 p.

The theoretical basis of an interdisciplinary integrated part of transport, economic and logistics thought is developed which is called the theory of «terminology», which is distinguished by a complex consideration of design and operation of logistics objects (LO). A functional-logistic approach to development of transport nodes (TN) and LO is proposed based on the criteria of stability, structuredness, development of the infrastructure and range of services. A universal system of transport-logistics classification and hierarchy of LO, TN and morphology of vehicles was created. On its basis, parametric series of logistics objects are compiled reflecting technical and operational features essential for a client and possibilities of implementing the proposed methods for identifying LO, taking into account the logistic class of the customer-oriented railway customer service stations of the Russian Railways holding company.

Vasiliev, A. A. Improvement of technology of depot repair of auxiliary electric cars of electric trains. Abstract of Ph.D. (Eng) thesis. Omsk, OmGUPS publ., 2018, 19 p.

The author developed a mathematical model of the process of hardening of insulation structures of windings of auxiliary electric cars of electric trains with thermal radiation, taking into account the change in optical properties of the gas located between an infrared emitter and a winding surface. An algorithm for calculating the transmission efficiency of thermal radiation is proposed to predict a flow of transporting energy beams into the insulating structures of windings of auxiliary electric cars. The method of determining the rational modes of infrared energy supply in the technology of strengthening of insulation structures of windings of AOM-32 stators and P-31 anchors was approved taking into account the gas environment.

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