



Preface

Information about the conference

The IV International Scientific and Technical Conference “Energy systems” (ICES - 2019) was hosted by the federal state budget institution of higher education “Belgorod State Technological University named after V. G. Shukhov” (BGTU named after V.G. Shukhov) on October 31 – November 1, 2019.

The conference suggested the solution to fundamental scientific problems in the field of energy. The main point is a systematic approach. The studied systems are complex and require the management of large systems and integration of knowledge. Also, one of the objectives of the conference was the wide involvement of young scientists – students, undergraduates, and graduate students.

Conference website:



<http://energysystem.bstu.ru>

The working languages of the conference were English and Russian. 125 reports were selected for the conference. As a result of the conference 29 Russian-language reports were prepared in the main section of the conference and 18 reports in the section of young scientists, 59 reports were in English. 19 reports were issued in both Russian and English versions (the articles are not just a translation of the same text into two languages, but have significant differences due to different volumes of publications, requirements for the structure of the material and number of references in the bibliography). This volume contains reports in English. The reports in Russian can be found on page <http://es.bstu.ru/archive/2019>.



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Fundamental and practical issues in the scientific fields of heat technology, energy, and resource-saving in industrial production have been considered.

The conference demonstrated further approval of innovative approaches which are based on the fundamental research. The identified problems and new challenges that help to strengthen interdisciplinary ties in the energy industry have been shown. It was demonstrated that the domestic industry is in ever-increasing need of modern scientific and technical developments, as well as strengthening of the interaction between universities and industry.

The young scientists have demonstrated a great interest in this conference, which were coauthors of the work of their senior colleagues, and the sole authors of the reports.

Belgorod, Russia, 2019

Prof. Pavel Trubaev

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Photos from the conference





Conference sections

The main problems of the research were determined by the selected sections based on the analysis of the received applications:

Topic 1. Heat and power engineering (20 reports)

The fundamental and practical issues in the scientific fields of heat and mass transfer processes, heat generation, heat conversion to other types of energy, providing consumers with energy resources were considered.



Speaker
Alexey Biryukov, DSc



Speaker
Michael Averbukh, DSc

Topic 2. Electric power and electrical engineering (18 reports)

Fundamental and practical issues in the scientific fields of production, distribution, transformation, and use of electric energy, development, and optimization of electronic components were considered.

Topic 3. Energy-saving and energy efficiency, power ecology (13 reports)

Fundamental and practical questions in scientific areas of energy resources cost reduction, increases in the energy efficiency of power and heat technical systems, the energy efficiency of buildings, buildings, constructions, impacts of power on the environment, elimination of emissions and pollution, waste recycling for energy were considered.



Speaker
Pavel Trubaev, DSc



Speaker
Evgeniy Gasho, DSc

Topic 4. Alternative and renewable energy sources (10 reports)

Fundamental and practical issues in the scientific fields of production, distribution, transformation, and use of electrical energy, development, and optimization of electronic components were considered.

Topic 5. Energy and resource-saving in technologies (17 reports)

Fundamental and practical issues in the scientific fields of heat technology, energy, and resource-saving in industrial production were considered.



Speaker
Vladimir Sevostyanov, DSc

Conferees

The conference was attended by 191 people from 52 organizations (including 43 Universities, four Research Institutes and five Enterprises), which are located in 26 Russian regions and four foreign countries:

- Bagdad, University of Technology;
- Barnaul, Polzunov Altai State Technical University;
- Belgorod State National Research University;
- Belgorod State Technological University named after V. G. Shukhov;
- Belgorod, TC “Ekotrans”, LLC;
- Chita, Transbaikal State University;
- Donetsk National Technical University;
- Donetsk National University of Economics and Trade named after Mikhail Tugan-Baranovsky;
- Ekaterinburg, Ural Federal University named after the first President of Russia B.N. Yeltsin;
- Irkutsk National Research Technical University;
- Kazan National Research Technical University named after A. N. Tupolev;
- Kazan National Research Technological University;
- Kazan State Power Engineering University;
- Kazan, M12Systems, LCC;
- Kharkiv, National Technical University “Kharkiv Polytechnic Institute”;
- Kharkiv, V. N. Karazin National University;
- Khujand, Polytechnic Institute of Tajik Technical University named after M. S. Osimi;
- Krasnodar, Kuban State University;
- Krasnoyarsk, Siberian Federal University;
- Magnitogorsk, Nosov Magnitogorsk State Technical University;
- Magnitogorsk, PJSC Magnitogorsk Iron and Steel Works
- Makeyevka, Donbas National Academy of Civil Engineering and architecture;
- Moscow National Research University “MPEI”;
- Moscow State University of Civil Engineering;
- Moscow, Financial University under the Government of the Russian Federation;
- Moscow, Research Institute of Agricultural Mechanization;
- Najaf, Kufa University;
- Nizhny Novgorod State Technical University n.a. R.E. Alekseev;
- Novoronezh representative office of JSC ESKM Corporation;
- Novosibirsk State Technical University;
- Novosibirsk State Technical University;
- Novosibirsk, Siberian Transport University;
- Obninsk, I.I. Leypunsky Institute of Physics and Power Engineering;
- Orenburg State University;
- Petrozavodsk State University;
- Rostov-on-Don, Federal Research Centre The Southern Scientific Centre of The Russian Academy of Sciences;
- Samara State Technical University;
- Samara University (Samara national research university of a name of the academician S.P. Korolyov);
- Saratov Scientific Center of the Russian Academy of Sciences;
- Saratov, Yuri Gagarin State Technical University of Saratov

- Sevastopol State University;
- Simferopol, V.I. Vernadsky Crimean Federal University;
- Smolensk, Branch of the Moscow Power Engineering Institute;
- St. Petersburg, Peter the Great St. Petersburg Polytechnic University;
- Tambov State Technical University;
- Troitsk, South-Ural State Agro University;
- Tver State Technical University;
- Verkhnyaya Pyshma, Technical University UMMC (Ural Mining Metallurgical Company - Holding Corporation);
- Vladimir State University named after Alexander and Nikolay Stoletov;
- Volzhsky, Branch of the Moscow Power Engineering Institute;
- Voronezh State Technical University;
- Voronezh, IDGC of Centre — Voronezhenergo division;
- Yakutsk, M. K. Ammosov North-Eastern Federal University.

The number of authors is as follows:

- Dr. of tech. Sciences (DSc), professors - 22 persons;
- Cand. of tech. Sciences (Phd), associate professors – 92 persons;
- Engineers, assistants, senior teachers – 16 persons;
- Graduate and undergraduate students – 55 persons;
- Persons of industry – 6 persons.

PROGRAM COMMITTEE

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