

PAPER • OPEN ACCESS

III International Scientific and Technical Conference “Energy Systems”

To cite this article: 2019 *IOP Conf. Ser.: Mater. Sci. Eng.* **552** 011001

View the [article online](#) for updates and enhancements.



Preface

Information about the conference

The III international scientific and technical conference "Energy systems" (ICES - 2018) was held on November 29-30, 2018 on the basis of the Federal state budget institution of higher education "Belgorod State Technological University named after V. G. Shukhov" (BGTU named after V. G. Shukhov).

The conference contributed to the solution of fundamental scientific problems in the field of energy. The main point is systematic approach. The studied systems are complex and requires 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. The 72 reports were selected for the conference. As a result of the conference 19 Russian-language reports were prepared in the main section of the conference and 7 reports in the section of young scientists, 28 reports were in English. The 18 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 the number of references in the bibliography). This volume contains reports in English. The reports in Russian can be found on the page <http://es.bstu.ru/archive/2018>.



Content from this work may be used under the terms of the [Creative Commons Attribution 3.0 licence](https://creativecommons.org/licenses/by/3.0/). Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.



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

The conference demonstrated further approval of innovative approaches on the basis of fundamental research. The identified problems and new challenges on the way to strengthening interdisciplinary ties in the energy industry were shown. It was demonstrated an increase in the need to provide the domestic industry with modern scientific and technical developments, as well as the strengthening the interaction of Universities and industry.

In addition to the scientific program, the guests of the conference took a tour after BSTU territory, Belgorod city, have visit the objects of alternative energy-biogas station "Luchki" with a capacity of 3.6 MW, solar and wind power plants, have visit the diorama "Fire arc" and the Museum-reserve Prokhorov field – the Third battlefield of Russia.



Belgorod, Russia, 2018

Prof. Pavel Trubaev

E-mail trubaev@gmail.com

RFBR

The conference is held with financial support
of the Russian Foundation for Basic Research (RFBR)
project No. 18-08-20138

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 (10 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 (8 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 decrease in an expense of energy resources, increases in energy efficiency in power and heattechnical systems, energy efficiency of buildings, buildings, constructions, impacts of power on the environment, elimination of emissions and pollution, power use of waste were considered.



Speaker Pavel
Trubaev, DSc



Speaker Evgeniy
Gasho, PhD

Topic 4. Alternative and renewable energy sources (6 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 5. Energy and resource saving in technologies (9 reports)

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



Speaker
Vladimir Sevostyanov, DSc

Conferees

The conference was attended by 160 people from 30 organizations (including 26 universities and four enterprises) located in 16 Russian regions and four foreign countries

- Bagdad, University of Technology;
- Barnaul, Altai State Agricultural University;
- Barnaul, Altai State University;
- Belgorod, Belgorod State National Research University;
- Belgorod, Belgorod State Technological University named after V. G. Shukhov;
- Belgorod, LLC "TC "Ekotrans";;
- Bet Yaqub, University of DIALA;
- Chita, Transbaikal State University;
- Donetsk, Donetsk National Technical University;
- Donetsk, 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;
- Ivanovo, State Power Engineering University;
- Izhevsk, LLC "Vakuummash Electro";
- Kazan, Kazan National Research Technological University;
- Kazan, Kazan State Power Engineering University;
- Khujand, Polytechnic Institute of Tajik Technical University named after M. S. Osimi;
- Makeyevka, Donbas National Academy of Civil Engineering and architecture;
- Milwaukee, University of Wisconsin-Milwaukee;
- Moscow, LLC "Eurogaz";
- Moscow, Moscow State University of Civil Engineering;
- Moscow, National Research University "MPEI";
- Novosibirsk, Novosibirsk State Technical University;
- Samara, Samara State Technical University;
- Smolensk, Branch of the Moscow Power Engineering Institute;
- Smolensk, LLC "Elektroset-Smolensk";
- St. Petersburg, Peter the Great St. Petersburg Polytechnic University;
- Tver, Tver State technical University;
- Ufa, Ufa State Petroleum Technological University;
- Vladimir, Vladimir State University named after Alexander and Nikolay Stoletov;
- Volzhsky, Branch of the Moscow Power Engineering Institute;

The number of authors is as follows:

- Dr. of tech. Sciences (DSc), professors-28 persons;
- Cand. of tech. Sciences (Phd), associate professors – 56 persons;
- Engineers, assistants, senior teachers – 29 persons;
- Graduate students – 20 persons;
- Graduate and undergraduate students – 27 persons.

The huge demand of this conference was by the young scientists, which were coauthors of the work of their senior colleagues, and the sole authors of the reports.

PROGRAM COMMITTEE**Pavel Trubaev**, Chairman, Dr. of Tech. Sciences (DSc)

Professor of the Department of Energy Engineering of Heat Technology BSTU named after V. G. Shukhov (Belgorod, Russia)

Alexandr Belousov, Vice-Chairman, Cand. Of tech. Sciences (Phd)Director of the Institute of Energy, Information Technology and Control Systems,
Head of Department of Power and Automation of BSTU named after V. G. Shukhov (Belgorod)**Alexey Birukov**, Dr. of Tech. Sciences (DSc)Vice-Rector Donetsk National Technical University,
Head of Department of Industrial Thermal Physics Donetsk National Technical University (Donetsk)**Alexey Botviniev**

Deputy Head of the Ministry of Housing and Communal Services of the Belgorod region – Head of Department of Development of Fuel and Energy Complex (Belgorod, Russia)

Evgeniy Gasho, Cand. of tech. Sciences (PhD)

Associate professor of Department of Industrial Heat and Energy Systems of the Moscow Power Engineering Institute,

Expert of Analytical Center Under the Government of the Russian Federation (Moscow, Russia)

Vladimir Kozhevnikov, Cand. of tech. Sciences (PhD), Honored power engineer of the Russian Federation

Head of Department of Energy Engineering of Heat Technology of BSTU named after V. G. Shukhov (Belgorod, Russia)

Nikolay Mozgovoy, Dr. of Tech. Sciences (DSc)

Head Department of Industrial Ecology and Safety Voronezh State Technical University (Voronezh, Russia)

Vadim Radchenko, Cand. of econom. Sciences (PhD)

Deputy of the Council of Deputies of the City of Belgorod, CEO of the Center of Energy Technologies Ltd (Belgorod, Russia)

Oleg Rybalkin, Dr. of Tech. Sciences (DSc)

Professor of the Department of Power Supply of South-Western State University (Kursk, Russia)

Alexandr Sapryka, Dr. of Tech. Sciences (DSc)

Kharkiv University of Urban Economy (Kharkiv, Ukraine)

Vladimir Sevostyanov, Dr. of Tech. Sciences (DSc), Honored Inventor of the Russian Federation

Head of Department of Technology Complexes, Machines and Mechanisms of BSTU named after V. G. Shukhov (Belgorod, Russia)

Zlata Udovichenko, Cand. of tech. Sciences (PhDS)

Associate Professor of the Department of Heat Engineering, Heat and Gas Supply and Ventilation of the Donbass Academy of Architecture and Construction (Makeyevka, Donetsk region)

Goran Vučković, PhD

Faculty of Mechanical Engineering in Niš, University of Niš (Niš, Serbia)

Marina Kozhukhova, PhD

College of Engineering & Applied Science, University of Wisconsin–Milwaukee (Milwaukee, USA)

ORGANIZING COMMITTEE OF THE CONFERENCE**Sergey Glagolev**, Chairman, Dr. of Econ. Sciences

Rector of BSTU named after V. G. Shukhov

Pavel Trubaev, Deputy Chairman, Dr. of Tech. Sciences

Professor of BSTU named after V. G. Shukhov

Alexandr Belousov, Cand. of tech. Sciences (Phd)Director of the Institute of Energy, Information Technology and Control Systems,
Head of Department of Power and Automation of BSTU named after V. G. Shukhov (Belgorod)**Jury Koshlich**, Cand. of tech. Sciences (Phd)

CEO of the STC ASP Ltd, Associate Professor of electricity and automation

Elena Fironova

Head of the Department of Development of Fuel and Energy Complex and Engineering Infrastructure of the Ministry of Housing and Communal Services of the Belgorod region.