

Preface

International Conference on Industrial Engineering took place on May 15-18, 2018 in Moscow, Russian Federation. The conference was organized by 3 universities – Moscow Polytechnic University, South Ural State University (national research university) and Platov South-Russian State Polytechnic University.

The conference was carried out under financial support of the South Ural State University (national research university), Moscow Polytechnic University as well as at informational support of the Institute of Electrical and Electronics Engineers (South Ural IEEE Chapter).

The conference was really large-scaled and international. The international program committee has selected more than 900 reports. The conferees represented 79 Russian cities and towns and 22 cities of 15 states such as Egypt, Belarus, Bulgaria, Canada, Cyprus, China, Germany, Iraq, Kazakhstan, Mongolia, Portugal, Spain, Tajikistan, United States, Ukraine.

The conference participants submitted papers reflecting recent advances in the field of Industrial Engineering, in Russian and English. The conference was organized in 15 sections, including:

Part 1. Research and development of machines and mechanisms (Dynamics of machines and working processes; Friction, wear, and lubrication in machines; Design and manufacturing engineering of industrial facilities; Surface transport and technological machines; Equipment and technology of welding production);

Part 2. Materials engineering and technologies for production and processing (New functional materials and technologies; Innovation and cost-effective use of resources of metallurgy industry);

Part 3. Control and automation systems for manufacturing in the industrial production areas (Control systems and their industrial application; Industrial mechatronics, automation and robotics; Electric power systems and renewable energy sources; Power electronics, electrical machines and drives; Signal processing and real time embedded control; Modeling and computer technologies; Theory and applications of dynamical measurements).

The international program committee has selected totally 235 papers for publishing in the Solid State Phenomena (Trans Tech Publications Ltd.).

The organizing committee would like to express our sincere appreciation to everybody who has contributed to the conference. Heartfelt thanks are due to authors, reviewers, participants and to all the team of organizers for their support and enthusiasm which granted success to the conference.

Conference Chair, prof. Andrey A. Radionov.

Conference Committee

Conference Chair

Andrey A. Radionov, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Program Co-Chair

Oleg A. Kravchenko, Dr.Sc.(Techn.), Associated Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Yuriy M. Borovin, Ph.D., Associated Professor, Moscow State Polytechnic University, Moscow

International Program Committee

Vladimir N. Alekhin, Ph.D, Associated Professor, Ural Federal University named after the first President of Russia B.N. Yeltsin, Ekaterinburg

Aleksey S. Anuchin, Ph.D, Associated Professor, National Research University "Moscow Power Engineering Institute", Moscow

Robert V. Ambartsumyants, Dr.Sc.(Techn.), Full Professor, Odessa National Academy of Food Technologies, Odessa, Ukraine

Igor A. Bayev, Dr.Sc.(Economic), Full Professor, South Ural State University (National Research University), Chelyabinsk

Albert Kh. Bayburin, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Victor Ya. Bespalov, Dr.Sc.(Techn.), Full Professor, National Research University "Moscow Power Engineering Institute", Moscow

Igor V. Bochkarev, Dr.Sc.(Techn.), Full Professor, Kyrgyz State Technical University after I. Razzakov, Bishkek, Kyrgyz Republic

Isaak Ya. Braslavskiy, Dr.Sc.(Techn.), Full Professor, Ural Federal University named after the first President of Russia B.N. Yeltsin, Ekaterinburg

Aleksey G. Bulgakov, Dr.Sc.(Techn.), Full Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Oleg V. Burlachenko, Dr.Sc.(Techn.), Full Professor, Volgograd State University of Architecture and Civil Engineering, Volgograd

Aleksandr S. Vasilyev, Dr.Sc.(Techn.), Full Professor, Bauman Moscow State Technical University, (National Research University), Moscow

Denis A. Vinnik, Ph.D, Associated Professor, South Ural State University (National Research University), Chelyabinsk

Sergey A. Gandzha, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Badrudin G. Gasanov, Dr.Sc.(Techn.), Full Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Vladimir N. Geychuk, Dr.Sc.(Techn.), Associated Professor, National Technical University of Ukraine "Kyiv Polytechnic Institute", Kyiv, Ukraine

Valeriy A. Granovskiy, Dr.Sc.(Techn.), Full Professor, State Research Center of the Russian Federation "Concern CSRI Elektropribor" JSC, Sankt-Peterburg

Vitaliy O. Groppen, Dr.Sc.(Techn.), Full Professor, North Caucasian Institut of Mining and Metallurgy (State Technological University), Vladikavkaz

Viktor I. Guzeyev, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Yuriy N. Dementyev, Ph.D, Associated Professor, Tomsk Polytechnic University, Tomsk

Lubomir V. Dimitrov Ph.D, Full Professor, Technical University of Sofia, Bulgaria

Igor V. Dobrov, Dr.Sc.(Techn.), Full Professor, National Metallurgical Academy of Ukraine, Dnepropetrovsk, Ukraine

Yuriy G. Dorofeyev, Dr.Sc.(Techn.), Full Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Aleksandr A. Dyakonov, Dr.Sc.(Techn.), South Ural State University (National Research University), Chelyabinsk

Anatolij M. Zjuzev, Dr.Sc.(Techn.), Associated Professor, Ural Federal University named after the first President of Russia B.N. Yeltsin, Ekaterinburg

Vladimir S. Isakov, Dr.Sc.(Techn.), Full Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Sultanbek S. Isenov , Ph.D., Associated Professor, S. Seifullin Kazakh AgroTechnical University, Astana, Kazakhstan

Evgeniy S. Kamenetskiy, Dr.Sc.(Physical and Mathematical), Full Professor, North Caucasian Institut of Mining and Metallurgy (State Technological University), Vladikavkaz

Alexander S. Karandaev, Dr.Sc.(Techn.), Full Professor, Nosov Magnitogorsk State Technical University, Magnitogorsk

Lev S. Kazarinov, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Alevtina V. Keller, Dr.Sc.(Physical and Mathematical), Associated Professor, South Ural State University (National Research University), Chelyabinsk

Andrey V. Keller, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Leonid M. Kolchedantsev, Dr.Sc.(Techn.), Full Professor, Saint-Petersburg State University of Architecture and Civil Engineering, Saint-Petersburg

Aleksandr I. Kondakov, Dr.Sc.(Techn.), Full Professor, Bauman Moscow State Technical University, (National Research University), Moscow

Boris M. Krasnovskiy, Dr.Sc.(Techn.), Full Professor, National Research University Higher School of Economics, Moscow

Mikhail S. Lipkin, Dr.Sc.(Techn.), Associated Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Gennadiy G. Mikhaylov, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Valentin A. Pinchuk, Dr.Sc.(Techn.), Full Professor, Lugansk, Ukraina

Georgiy Ya. Pyatibratov, Dr.Sc.(Techn.), Full Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Yuriy V. Rozhdestvenskiy, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Aleksandr L. Rutkovskiy, Dr.Sc.(Techn.), Full Professor, North Caucasian Institut of Mining and Metallurgy (State Technological University), Vladikavkaz

Yevgeniy K. Spiridonov, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Gennadiy M. Skibin, Dr.Sc.(Techn.), Full Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Mikhail M. Titov, Dr.Sc.(Techn.), Full Professor, Novosibirsk State University of Architecture and Civil Engineering, Novosibirsk

Boris Ya. Trofimov, Dr.Sc.(Techn.), Full Professor, South Ural State University (National Research University), Chelyabinsk

Ibragim T. Tuganbayev, Dr.Sc.(Techn.), Full Professor, S. Seifullin Kazakh AgroTechnical University, Astana, Kazakhstan

Dmitriy V. Ulrikh, Ph.D, Associated Professor, South Ural State University (National Research University), Chelyabinsk

Bolatbek B. Utegulov, Dr.Sc.(Techn.), Full Professor, S. Seifullin Kazakh AgroTechnical University, Astana, Kazakhstan

Sergey A. Haritonov, Dr.Sc.(Techn.), Full Professor, Novosibirsk State Technical University, Novosibirsk

Vadim R. Hramshin, Dr.Sc.(Techn.), Associated Professor, Nosov Magnitogorsk State Technical University, Magnitogorsk

Tatyana A. Khudyakova, Ph.D, Associated Professor, South Ural State University (National Research University), Chelyabinsk

Andrey V. Shmidt, Dr.Sc.(Economic), Full Professor, South Ural State University (National Research University), Chelyabinsk

Emil Bashkansky, Ph.D., Full Professor, ORT Braude College of Engineering, Karmiel, Israel

Erkki Lahderanta, Ph.D., Full Professor, Lappeenranta University of Technology, Lappeenranta, Finland

Franco Pavese, Dr., Full Professor, National Institute for Research in Metrology, Torino, Italy

Karali Patra, Ph.D., Assistant Professor, Indian Institute of Technology Patna, Patna, India

Rainer Niewa, Dr., Full Professor, Institut fur Anorganische Chemie Universitat Stuttgart, Stuttgart, Germany

Ryszard Strzelecki, Ph.D., Full Professor, Gdynia Maritime University, Gdynia, Poland

Organising Committee

Vadim R. Gasiyarov, Ph.D., Associated Professor, South Ural State University (National Research University), Chelyabinsk

Evgeniy V. Safonov, Ph.D., Moscow State Polytechnic University, Moscow

Nikolay A. Suhenko, Ph.D., Associated Professor, Platov South-Russian State Polytechnic University (Novocherkassk Polytechnic Institute), Novocherkassk

Alexandra S. Kulmukhametova, Ph.D., Associated Professor, South Ural State University (National Research University), Chelyabinsk

Alexander S. Maklakov, Ph.D., South Ural State University (National Research University), Chelyabinsk