

Preface

“ACTUAL PROBLEMS IN MACHINE BUILDING” The Second International Scientific and Practical Conference Novosibirsk, 25 March 2015

During the period from the 24th to 27th of March, the company “ITE Siberia” held the International Exhibition of Mechanical Engineering and Metalworking “*Mashex Siberia*” - the most significant event of the industry beyond the Urals. The event was held at the Novosibirsk Expocentre. The Exhibition is an instrument for modernization of the enterprises of the Siberian Federal District and creates conditions for the advanced development of machine building complex. The Exhibition shows the industry trends, which promotes innovations in production and replacement of fixed assets of enterprises as well as enhances their competitiveness. The Exhibition was attended by over 100 companies from 21 regions of Russia - from Kaliningrad to Vladivostok and what is more from Germany and China. 3389 visitors attended the Exhibition during four days.

On the 25th of March within the framework of the Exhibition the Second International Scientific and Practical Conference “ACTUAL PROBLEMS IN MACHINE BUILDING” was held. The organizers of this year conference were: Novosibirsk State Technical University, *Hochschule RheinMain University of Applied Sciences*, *Leibniz Universität Hannover*, Donbass State Engineering Academy, Belarusian National Technical University, Scientific, technical and production journal “Obrabotka Metallov”, Exhibition Company «ITE Siberia», Bratsk State University, Kuzbass State Technical University, Polzunov Altai State Technical University, Biysk Technological Institute.



Vice Rector for Academic Affairs of NSTU Professor A.A. Bataev opened the conference and delivered a welcoming speech. In his speech, Anatoly A. Bataev expressed a hope that the conference will make a significant contribution to the development of engineering science and solution of its

actual problems. The Dean of the Faculty of Mechanical Engineering of NSTU V.V. Yanpolsky wished every success in the conferencing and creative achievements to the participants of the Conference.

The issues of cooperation between science and industry, advances in the technological productivity of machine parts, creation and study of advanced structural materials, innovative approaches and investment in the industry were discussed at the Conference. The Conference was attended by over 250 representatives of domestic and foreign industry, research institutes and universities of Brazil, Germany, France, Belarus, Ukraine and Russia.

During the conference the following topics were discussed: “Innovative technologies in mechanical engineering”, “Technological equipment, accessories and tools”, “Materials Science in mechanical engineering”. The Conference was characterized by the atmosphere of goodwill, productive criticism, a variety of the issues of mechanical engineering. Many of the conclusions that were presented by the speakers during speeches, are not only of theoretical interest, but have the undeniable practical value.

In conclusion, the conference was summed up, and all the participants were presented diplomas for a high scientific and technical level, a topicality and practical relevance of the reports.



Languages of communications at the conference are Russian, English and German.

The site of the conference is <http://machine-building.conf.nstu.en>.

On behalf of the committees, we would like to welcome you in Novosibirsk and to wish you an exciting conference!

CONFERENCE ORGANIZERS

- **Novosibirsk State Technical University**, Novosibirsk, Russian Federation
- **Exhibition company “ITE Siberia”**, Novosibirsk, Russian Federation

CO-ORGANIZERS

- **Hochschule RheinMain University of Applied Sciences**, Russelsheim, Germany;
- **Leibniz Universität Hannover**, Garbsen, Germany;
- **Donbass State Engineering Academy**, Kramatorsk, Ukraine;
- **Belarusian National Technical University**, Minsk, Republic of Belarus;
- **JSC Novosibirsk Technological, Designing and Experimental Institute “Orgstankinprom”**, Novosibirsk, Russian Federation;
- **LLC Research-and-production and commercial company “Mashservispribor”**, Novosibirsk, Russian Federation;
- **Scientific, Technical and Industrial Journal "Obrabotka Metallov"**, Novosibirsk, Russian Federation;
- **Kuzbass State Technical University named after T.F. Gorbachev**, Kemerovo, Russian Federation;
- **Siberian State Industrial University**, Novokuznetsk, Russian Federation;
- **I.I. Polzunov Altai State Technical University**, Barnaul, Russian Federation;
- **Biysk Technological Institute, Branch of Polzunov Altai State Technical University**, Biysk, Russian Federation;
- **Institute of Strength Physics and Materials Science of the Siberian Branch of the RAS**, Tomsk, Russian Federation;
- **National Research Tomsk Polytechnic University**, Tomsk, Russian Federation;
- **Bratsk State University**, Bratsk, Russian Federation.

HONORARY COMMITTEE

COMMITTEE MEMBERS: *Monico Greif*, Professor, DSc, High School of the Rhine-Main, University of Applied Sciences (Rüsselsheim, Germany), *Thomas Hassell*, Professor, DSc, Wilhelm Leibniz University of Hannover (Garbsen, Germany), *Florian Nürnberger*, Professor, DSc, Hanover Wilhelm Leibniz University (Garbsen, Germany), *Burov V.G.*, Professor, DSc., NSTU (Novosibirsk, Russia), *Kovalevsky S.V.*, Professor, DSc, DSEA (Kramatorsk, Ukraine), *Panteleenko F.I.*, Professor, DSc, member of the National Academy of Sciences of Belarus, Belarusian National Technical University (Minsk, Belarus), *Afanasyev V.K.*, Academy of Natural Sciences, Professor, DSc, SibSIU (Novokuznetsk, Russia), *Gerasenko A.N.*, Director of the LLC Research-and-production and commercial company “Mashservispribor” (Novosibirsk, Russia), *Guriev A.M.*, Professor, DSc. AltSTU (Barnaul, Russia), *Kirsanov S.V.*, Professor, DSc, TPU (Tomsk, Russia), *Markov A.M.*, Professor, DSc. Vice Rector of AltSTU (Barnaul, Russia), *Meshcheriakova N.A.*, Exhibition Director, «ITE Siberia” (Novosibirsk, Russia), *Ovcharenko A.G.*, Professor, DSc, Head of Department in BTI AltSTU (Biysk, Russia), *Rakhimyanov Kh.M.*, Professor, DSc., Head of Department in NSTU (Novosibirsk, Russia), *Tatarkin E.Y.*, Professor, DSc, AltSTU (Barnaul, Russia), *Yanyushkin A.S.*, Professor, DSc, Corresponding Member SAN VSH, Academician IHEAS, Head of Department in BSU (Bratsk, Russia).

ORGANIZING COMMITTEE

Chairman of the Organising and Programme Committees

- **Bataev A.A.**, editor in chief of Scientific, Technical and Industrial Journal “Obrabotka Metallov”, Professor, D.Sc. (Engineering), Rector of Novosibirsk State Technical University (Novosibirsk, Russia);

Cochairmen:

- **Korotkov A.N.**, Academician of RAE, Professor, D.Sc. (Engineering), KuzSTU (Kemerovo, Russia).
- **Skeeba V.Yu.**, Deputy Chief Editor of “Obrabotka Metallov”, Associate Professor, Ph.D. (Engineering), NSTU (Novosibirsk, Russia).

PROGRAMME COMMITTEE

COMMITTEE MEMBERS: *Atapin V.G.*, Deputy Chief Editor of “Obrabotka Metallov”, Professor, DSc, NSTU (Novosibirsk, Russia), *Dashkova V.A.*, Head of Directorate Industry Exhibitions, “ITE Siberia” (Novosibirsk, Russia), *Ivancivsky V.V.*, D.Sc. (Engineering), Associate Professor, NSTU (Novosibirsk, Russia), *Lenivtseva O.G.*, Assistant of Department of Material Science in Mechanical Engineering, NSTU (Novosibirsk, Russia), *Lobanov D.V.*, DSc, Associate Professor, BSU (Bratsk, Russia).

EDITOR OF THE ENGLISH TRANSLATION: *Lazurenko D.V.*, Ph.D. (Engineering), Associate Professor, NSTU (Novosibirsk, Russia), *Lozhkina E.A.*, Ph.D. (Engineering), Associate Professor, NSTU (Novosibirsk, Russia).