Nosov Magnitogorsk State Technical University

The 5th International
Youth Scientific and Technical Conference

FUNDED BY RUSSIAN FOUNDATION FOR BASIC RESEARCH

RFBR

MAGNITOGORSK ROLLING PRACTICE 2020

November 24-27, 2020

PROGRAM BOOK

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Conference organized by

Nosov Magnitogorsk State Technical University, Magnitogorsk

Russian Foundation for Basic Research

South Ural State University, Chelyabinsk

Ural Federal University named after the First President of Russia B.N. Yeltsin, Ekaterinburg

Siberian Federal University, Krasnoyarsk

Perm National Research Polytechnic University,Perm

Institute for Metals Superplasticity Problems of RAS, Ufa

University of Padua, Italy

Indian Institute of Information Technology, Design and Manufacturing Jabalpur, India

Mechanics of Gradient Nanomaterials laboratory, Magnitogorsk

PJSC Magnitogorsk Iron & Steel Works, Magnitogorsk

Rudny Industrial Institute, Rudny, Kazakhstan

Dear colleagues!

On behalf of Nosov Magnitogorsk State Technical University we are delighted to welcome you to the 5th International Youth Scientific Conference «**Magnitogorsk Rolling Practice 2020**».

Magnitogorsk is one of the centers of global metallurgy, combining considerable scientific and industrial resources and knowledge. Therefore, it has become a tradition to organize the Magnitogorsk youth forum devoted to metal forming technologies.

Main Objective of the Conference is to give floor to young researchers to discuss new trends, developments and innovations in metal forming processes.

This year our Conference was recognized a winner of the competition for the best scientific events in Russia, which was organized by the Russian Foundation for Basic Research.

Unfortunately, in view of the current epidemic situation, the Conference will be held online. It will be a new experience for us.

Nevertheless, the Organizing Committee has no doubt that the online format of the Conference will be useful for young experts in metal forming. The agenda of the Conference includes reports of young researchers in subject-specific sessions, the workshop on «Basics of finite element modelling in Abaqus» and personal consultations on the subject of your scientific research.

Following a good tradition, the Organizing Committee will award authors of the best reports and announce winners in specific nominations. The best papers will be published in leading journals, partners of our Conference. The conference proceedings will be published in English and uploaded to the Russian Science Citation Index and Google Scholar.

We are sure that the Conference will give an impetus to a wider collaboration between young researchers dealing with metal forming and promote building new international research teams.

The Organizing Committee would like to greatly thank all the participants for their contribution to the aim of the conference.

We hope you will have a fruitful time during the conference and we are always glad to see you in the steel heart of Russia, the guest-friendly city of Magnitogorsk.

Chairperson
of the Organizing
Committee  Alexey Korchunov

Tuesday, 24th November 2020

WORKSHOP: Cross-Disciplinary Solutions in Modern Materials Engineering (iSmart-Metal Forming)

(***11:00-15:00 (MOSCOW TIME), Zoom***)

Reports language: English

Moderator: Marina Polyakova, Alexey Korchunov, Denis Pustovoitov, Alexander Pesin, Dmitrii Konstantinov

Welcome Speech *Alexey Korchunov, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia;* *Puneet Tandon, Indian Institute of Information Technology, Design and Manufacturing, Jabalpur, India;* *Megumi Kawasaki, Oregon State University, USA;* *Irene Calliari, University of Padua, Padua, Italy*	11:00-11:15
Features of rolling hard-to-deform steels and alloys in a shell from a soft material *Denis Salikhyanov, Ural Federal University named after the first President of Russia B.N.Yeltsin, Ekaterinburg, Russia*	11:15-11:30
Research of the heating temperature influence on technological plasticity of the steel grade 15KH13N2 (AISI 414) applicable to the screw rolling process15KH13N2 (AISI 414) *Nikita Zavartsev, Ural Research Institute of the Tube & Pipe Industries, Chelyabinsk, Russia*	11:30-11:45
Investigation of asymmetric rolling in the relief rolls *Alexandra Tymchenko, Karaganda Industrial University, Karaganda, Kazakhstan*	11:45-12:00
Cold hydrostatic extrusion method for making magnesium rods and fine wires *Daria Komkova, M.N. Mikheev Institute of Metal Physics of the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, Russia*	12:00-12:15
Development and testing of new steel grades by modeling the complex dynamic processes of their production and operation *Evgeniya Pozhidaeva, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia*	12:15-12:30
Features of the calculation strain at rolling zirconium alloy *Dmitry Abashev, Ural Federal University named after the first President of Russia B.N.Yeltsin, Ekaterinburg, Russia*	12:30-12:45
The influence of technological parameters on the properties formation of continuously extruded copper buses *Alexander Koshmin, National University of Science and Technology MISiS, Moscow, Russia*	12:45-13:00
Simulation of details for nuclear industry with UFG properties *Daniyar Zhumagaliyev, Rudny Industrial Institute, Rudny, Kazakhstan*	13:00-13:15
Modeling of a new method of rolling channels in the deform software package *Ekaterina Ustinova, Ural Federal University named after the first President of Russia B.N.Yeltsin, Ekaterinburg, Russia*	13:15-13:30

Research of the influence of reduction modes on the degree of the unevenness of deformation of a tube wall *Yaroslav Radkin, Sukhoi State Technical University of Gomel, Gomel, Republic of Belarus*	13:30-13:45
Verification with the spherical boundaries hypotises of the deformation zone at drawing *Nataly Bushueva, Ural Federal University named after the first President of Russia B.N.Yeltsin, Ekaterinburg, Russia*	13:45-14:00
Potential biomedical applications of AZ61 magnesium alloy after large strain extrusion machining (LSEM) *Luca Pezzato, University of Padua, Padua, Italy*	14:00-14:15
Features of steel wire drawing in double dies *Ilya Tsyrganovich, Sukhoi State Technical University of Gomel, Gomel, Republic of Belarus*	14:15-14:30
Development of the asymmetric accumulative roll bonding process technology for an aluminum alloys processing *Olesya Biryukova, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia*	14:30-14:45

Wednesday, 25th November 2020

WORKSHOP: Fundamental Challenges of Metal Forming in the Scope of Current Demands of the Global Industry

(***10:00-15:00 (MOSCOW TIME), Zoom***)

Reports language: Russian

Moderator: Denis Chikishev, Alexey Korchunov, Ksenia Pivovarova, Dmitrii Konstantinov

Assessment of the structure and modification ability of the experimental Al-3Ti-1B bar ligature obtained by method of ingotless rolling-extruding *Denis Voroshilov, Siberian Federal University, Krasnoyarsk, Russia*	10:00-10:15
Features of structure and properties formation of CuNiCrSi alloy after radial-shear rolling *Nikita Bunits, National University of Science and Technology MISiS, Moscow, Russia*	10:15-10:30
Simulation of contact between rollers of rolling mill at equal acceleration with slipping and lubrication *Maxim Kharchenko, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia*	10:30-10:45
Mathematical modeling of metal temperature during hot sheet rolling *Alexander Grigorenko, South Ural State University, Chelyabinsk, Russia*	10:45-11:00
Theoretical and experimental analysis of a neck profile of cylindrical specimens *Mikhail Erpalov, Ural Federal University named after the first President of Russia B.N.Yeltsin, Ekaterinburg, Russia*	11:00-11:15
Peculiarities of contact interactions between carbon steel wire and die in drawing with torsion *Alexander Gulin, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia*	11:15-11:30
Comparative analysis of structure and properties of rolled sheet from aluminum-magnesium alloys with different scandium content *Olga Yakivyuk, Siberian Federal University, Krasnoyarsk, Russia*	11:30-11:45

The development of control program for hot torsion test setup *Mikhail Erpalov, Ural Federal University named after the first President of Russia B.N.Yeltsin, Ekaterinburg, Russia*	11:45-12:00
On the question of treatment of Al-Si-Fe multicomponent alloys *Vladimir Ivasik, Ekibastuz technical and engineering institute named after the academician K.Satpayev*	12:00-12:15
Development of the asymmetric rolling technology as a severe plastic deformation method for aluminum narrow strips with a gradient structure showing higher strength and ductility *Anna Kozhemyakina, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia*	12:15-12:30
Roller die wire drawing of small diameters from titanium alloys *Dmitry Gromov, South Ural State University, Chelyabinsk, Russia*	12:30-12:45
Application of severe plastic deformation for cylindrical billets forging *Milana Stepanova, Ekibastuz technical and engineering institute named after the academician K. Satpayev*	12:45-13:00
Markov chains as the tool to simulate the metal rolling process under uncertainty conditions *Elena Shiryaeva, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia*	13:00-13:15
Workshop "Basics of finite element modelling in Abaqus" ***Dmitrii Konstantinov, Nosov Magnitogorsk State Technical University, Magnitogorsk, Russia***	**13:30-15:30**

Thursday, 26th November 2020

(MOSCOW TIME, ZOOM)

Individual consultations on the difficulties of research for young researchers	11:00 – 13:00

Friday, 27th November 2020

(MOSCOW TIME, ZOOM)

Closing Plenary and Award Giving	11:00 – 11:30

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