



International online conference

# Digitalization of industrial thermal processes and units



## Organizing Committee

### **Dmitry Borzov**

Chairman of the Organizing Committee, PhD in Engineering Sciences,  
Chief Business Development Officer, Magnezit Group, Russia

### **Andrey Dmitriev**

PhD in Physical and Mathematical Sciences, Institute of Strength Physics and Materials  
Science of the Siberian Branch of the Russian Academy of Sciences, Russia

### **Yawei Li**

Professor, Wuhan University of Technology, China

### **Jacek Szczerba**

Professor, PhD, AGH University of Science and Technology, Poland

## Experts

### **Nikita Dolgushev**

PhD in Engineering Sciences, almaGRID – Digital Platforms, Russia

### **Henrik Saxen**

Professor, Doctor of Technology (Chemical Engineering), Abo Akademi University, Finland

### **Vladimir Shubin**

Professor, PhD in Engineering Science, Fellow of the New York Academy of Sciences,  
Director-General (CEO) of CEMCLUB

## Time schedule

Time MT	Title	Speaker
9:00	Opening statement	<b>Vasily Verzakov</b> Deputy Chief Executive Officer
		<b>Dmitry Borzov</b> PhD in Engineering sciences, Chief Business Development Officer  Magnezit Group, Russia
<b>Section 1: Computer simulation</b>		
09:15	Modeling the initiation of destructive cracks in refractories during thermal shock	<b>Andrey Zabolotsky</b> PhD in Engineering Sciences, Magnezit Group, Russia
09:40	Numerical investigation of interaction between refractory lining and molten steel	<b>Qiang Wang</b> PhD in Engineering Sciences, Wuhan University of Technology, China
10:05	Creep behavior for purging plug during its periodic service process: a numerical approach	<b>Fangguan Tan</b> PhD in Engineering sciences, Wuhan University of Technology, China

Time MT	Title	Speaker
10:30	Simulation of the synthesis of new materials under conjugated heat exchange conditions	<p><b>Anna Knyazeva</b> Professor, PhD in Physical and Mathematical Sciences</p> <p><b>Natalya Bukrina</b> PhD in Physical and Mathematical Sciences</p> <p>Institute of Strength Physics and Materials Science of the Siberian Branch of the Russian Academy of Sciences, Russia</p>
11:05	Simulation of deformation and destruction of brittle porous materials of composite composition under dynamic mechanical and thermal influences	<p><b>Alexander Grigoryev</b> PhD in Physical and Mathematical Sciences</p> <p><b>Evgeny Shilko</b> PhD in Physical and Mathematical Sciences</p> <p><b>Andrey Dmitriev</b> PhD in Physical and Mathematical Sciences</p> <p>Institute of Strength Physics and Materials Science of the Siberian Branch of the Russian Academy of Sciences, Russia</p>
<b>Lunch break</b>		
12:30	Methodology for assessing the dynamic strength of quasi-brittle materials	<p><b>Grigory Volkov</b> PhD in Physical and Mathematical Sciences</p> <p><b>Yury Petrov</b> PhD in Physical and Mathematical Sciences</p> <p><b>Ivan Smirnov</b> PhD in Physical and Mathematical Sciences</p> <p>St. Petersburg State University, Russia</p>
12:55	Interpretation of hearth state in blast furnaces based on wear model calculations	<p><b>Henrik Saxen</b> Professor, Doctor of Technology (Chemical Engineering)</p> <p><b>Mikko Helle</b> PhD in Engineering Sciences</p> <p>Abo Akademi University, Finland</p>
13:30	Research of steel flows in the tundish of a two-stream continuous steel casting plant	<p><b>Marina Mikhaylova</b> Engineer at the Modeling Department Severstal, Russia</p>
13:55	Development of steel ladle lining on the wear profile	<p><b>Michal Sulkowski</b> PhD in Engineering Sciences, Arcelormittal Refractories, Poland</p>
14:20	Ceramics in metals joining and new perspectives of streamlining the welding processes	<p><b>Ilona Jastrzębska</b> PhD in Engineering Sciences, AGH University of Science and Technology, Poland</p>
14:45	Flownex for modeling distributed process control systems	<p><b>Valery Volovikov</b> Head of the Systems Modeling Group, CADFEM CIS, Russia</p>
15:10	Application of new possibilities of ANSYS and Rocky to model the production of refractories. Software customizing	<p><b>Andrey Feoktistov</b> PhD in Engineering Sciences</p> <p><b>Grigory Yusupov</b> Calculation Engineer of Mining and Mechanical Equipment</p> <p>CADFEM CIS (Russia)</p>

Time MT	Title	Speaker
<b>Section 2: Digital twin of production (Big Data)</b>		
<b>09:15</b>	Implementation of Hot Adjustment software complex for rotary kilns of Magnezit Group	<b>Andrey Borzov</b> PhD in Engineering Sciences Magnezit Group, Russia
<b>09:40</b>	Application of local non-stationary metallurgy for additive manufacturing of metal and polymetal products	<b>Kirill Kalashnikov</b> Postgraduate, Institute of Strength Physics and Materials Science of the Siberian Branch of the Russian Academy of Sciences, Russia
<b>10:05</b>	Computational modelling and prediction on viscosity of slags by big data mining	<b>Ao Huang</b> PhD in Engineering Science, Wuhan University of Technology, China
<b>10:40</b>	Comprehensive approach to creation of digital twins from Sarov Engineering Center	<b>Pavel Boriseiko</b> Deputy Head of Sales, Engineering Analysis and Technical Support Department, Sarovsky engineering center (Russia)
<b>11:05</b>	Virtual commissioning	<b>Stanislav Voronin</b> Expert on digitalization, Siemens, Russia
<b>Lunch break</b>		
<b>12:30</b>	Digital twin of production. Practice of creation and economics of implementation	<b>Ilya Skryabin</b> CEO, Connective PLM, Russia
<b>12:55</b>	Use of network (graph) mathematical model for analysis of cause-effect relationships and probabilities of equipment breakdowns	<b>Nikita Dolgushev</b> PhD in Engineering Sciences, almaGRID – Digital Platforms, Russia
<b>13:20</b>	Big data and artificial intelligence: out of industry specifics	<b>Yury Pakhomov</b> Reviewer, independent IT expert, Russia
<b>13:45</b>	Application of artificial neural network to predict the thermal and thermomechanical behavior of refractory linings	<b>Aidong Hou</b> Doctor of Mining and Metallurgical Sciences, University of Leoben, Austria
<b>14:20</b>	Practical aspects of low-temperatures oxidation of MgO-C refractories	<b>Sebastian Sado</b> Postgraduate, AGH University of Science and Technology, Poland
<b>14:45</b>	Digital transformation at the mining enterprise. Ball mill optimization decision	<b>Ivan Kolbin</b> Head of Technical Experts for Automation and Electric Drive, Schneider Electric, Russia
<b>15:10</b>	Automated system of predictive quality management in the line of continuous production	<b>Ilya Pugachev</b> Head of ML Department, CADFEM CIS, Russia
<b>15:35</b>	Summing-up	<b>Dmitry Borzov</b> PhD in Engineering Sciences, Chief Business Development Officer, Magnezit Group, Russia

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