

CONFERENCE PROGRAMME

LIST OF PARTICIPANTS

January 13–16, 2019, Zakopane, Poland

International Scientific Committee

Markus BAMBACH	Brandenburg University of Technology, Cottbus, Germany
Thierry BARRIERE	FEMTO-ST Institute, Besancon, France
Wolfgang BLECK	RWTH Aachen University, Germany
Ryszard BUCZKOWSKI	West Pomeranian University of Technology in Szczecin, Poland
Tadeusz BURCZYŃSKI	IPPT PAN, Warszawa, Poland
Witold CECOT	Cracow University of Technology, Poland
Jose Cesar de SA	University of Porto, Portugal
Francesco CHINESTA	Ecole Centrale of Nantes, France
Zbigniew GRONOSTAJSKI	Wrocław University of Technology, Poland
Anne-Marie HABRAKEN	The University of Liege, Belgium
Rudolf KAWALLA	TU-Bergakademie Freiberg, Germany
Michał KLEIBER	IPPT PAN, Warszawa, Poland
Ernst KOZESCHNIK	TU Wien, Austria
Jan KUSIAK	AGH University of Science and Technology, Kraków, Poland
Jari LARKIOLA	University of Oulu, Finland
Maciej PASZYŃSKI	AGH University of Science and Technology, Kraków, Poland
Pavel PETROV	Moscow State Technical University, Russia
Ulrich PRAHL	TU-Bergakademie Freiberg, Germany
Stefanie REESE	RWTH Aachen University, Germany
Jerzy ROJEK	IPPT PAN, Warszawa, Poland
Norbert SCZYGIOL	Częstochowa University of Technology, Poland
Jan SLADEK	Slovak Academy of Sciences, Bratislava, Slovakia
Christof SOMMITSCH	Graz University of Technology, Austria
Vasisht VENKATESH	Pratt & Whitney, East Hartford, USA
Barłomiej WIERZBA	Rzeszow University of Technology, Poland
Bradley WYNNE	The University of Sheffield, UK

Steering Committee

Maciej PIETRZYK	AGH University of Science and Technology, Kraków, Poland
Franciszek GROSMAN	Silesian University of Technology, Katowice, Poland

Conference Chairs

Danuta SZELIGA
Łukasz RAUCH
AGH University of Science and Technology, Kraków, Poland

Conference Secretary

Anna SMYK
AGH University of Science and Technology, Kraków, Poland

Local Organizer



Partners



Department of Applied Computer Science and Modelling
Faculty of Metals Engineering and Industrial Computer Science
AGH UNIVERSITY OF SCIENCE AND TECHNOLOGY



Institute of Materials Science
Faculty of Materials Science and Metallurgy
SILESIA UNIVERSITY OF TECHNOLOGY

Supporting Organisations



European Community on Computational Methods
in Applied Sciences
ECCOMAS



Metal Forming Section, Metallurgy Committee
POLISH ACADEMY OF SCIENCES



Centre of Computer Technology in Metallurgy
and Materials Science
CEKOMAT



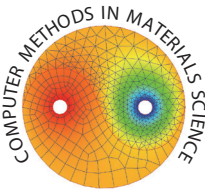
Polish Association for Computational Mechanics

Venue



ARIES Hotel & SPA
Mariusza Zaruskiego 5, Zakopane, Poland

Journal



<http://www.cmms.agh.edu.pl/>



Upcoming conferences



**The 5th ECCOMAS
Young Investigators Conference
(YIC2019)**
September 1–6, 2019
Kraków, Poland
www.yic2019.agh.edu.pl



Metal Forming 2020
September 20–23, 2020
Kraków, Poland
www.metalforming.agh.edu.pl



Sunday, 13th January

- 17:00–21:00 Sunday evening, *Hotel ARIES*
17:00–20:00 Registration, *Main Hall*
19:00–21:00 Reception, *Halka Restaurant*

Monday, 14th January

- 8:45–9:00 Conference Welcome, *Room Aspen*
9:00–10:20 Plenary lectures, *Room Aspen, page 11*
10:20–10:40 Coffee break
10:40–12:40 Morning lectures in two rooms:
Distribution Functions for the Description of Heterogeneous Metallic Microstructures,
Room Aspen, page 12
Alloys, *Room Zakopane, page 13*
12:40–12:45 Conference Photo, *In front of Aries hotel*
12:45–13:40 Lunch, *Halka Restaurant*
13:40–15:40 I Afternoon lectures in three rooms:
High Order Finite Elements Methods and Computing, *Room Aspen, page 14*
Alloys, *Room Zakopane I, page 15*
Evolutionary Algorithms and Artificial Intelligence in Metallurgy
and Materials Science – in Honour of Professor Nirupam Chakraborti,
Room Zakopane II, page 16
15:40–16:00 Coffee break
16:00–18:00 II Afternoon lectures in three rooms:
High Order Finite Elements Methods and Computing, *Room Aspen, page 17*
Processes, *Room Zakopane I, page 18*
Evolutionary Algorithms and Artificial Intelligence in Metallurgy
and Materials Science – in Honour of Professor Nirupam Chakraborti,
Room Zakopane II, page 19
19:00 Regional evening, *Sabala Restaurant (Krupówki 11, Zakopane)*

Tuesday, 15th January

- 8:30–13:00 Winter sports, (*Skiing / Excursion*)
- 13:00–14:00 Lunch, *Halka Restaurant*
- 14:00–14:40 Plenary lecture, *Room Aspen, page 11*
- 14:40–16:40 I Afternoon lectures in three rooms:
Multiscale modelling, *Room Aspen, page 20*
Processes, *Room Zakopane I, page 21*
Evolutionary Algorithms and Artificial Intelligence in Metallurgy
and Materials Science – in Honour of Professor Nirupam Chakraborti,
Room Zakopane II, page 22
- 16:40–17:00 Coffee break
- 17:00–19:00 II Afternoon lectures in three rooms:
Multiscale modelling, *Room Aspen, page 23*
Processes, *Room Zakopane I, page 24*
Evolutionary Algorithms and Artificial Intelligence in Metallurgy
and Materials Science – in Honour of Professor Nirupam Chakraborti,
Room Zakopane II, page 25
- 20:00 Conference dinner, *Halka Restaurant*

Wednesday, 16th January

- 9:00–10:20 Plenary lectures, *Room Aspen, page 11*
- 10:20–10:40 Coffee break
- 10:40–12:20 Morning lectures:
Applications of Artificial Intelligence, *Room Aspen, page 26*
- 12:40–13:40 Lunch, *Halka Restaurant*

Plenary speakers



**Irene Beyerlein,
University of California,
Santa Barbara, United States of America**

Irene Byerelein is a Professor in the Department of Mechanical Engineering at UC Santa Barbara. Her research focuses on the creation and design of advanced materials with unprecedented structural performance under extremes of strains, stress, and temperature. Commercially available materials typically have strength or toughness limitations and trade-offs and the overarching research goals will seek to understand and predict how to design and make novel lightweight materials that attain strengths nearer to their theoretical limits. These materials include multi-phase microstructures or nanostructures that can be manufactured in sizes suitable for structural applications. The research builds and advances high-throughput computational materials science and aims to uncover and understand key deformation mechanisms, to model and predict prevailing defect interactions with internal grain boundaries and interfaces, and to simulate manufacturing processes in order to design pathways for target micro- or nanostructures. H-index: 54, sum of times cited ca. 9400.



**Victor Calo,
Curtin University,
Perth, Australia**

Dr Victor Manuel Calo is a Professor in Applied Geology Department of the Western Australian School of Mines in the Faculty of Science and Engineering at Curtin University. Dr Calo holds the CSIRO Professorial Chair in Computational Geoscience and is a highly cited researcher who is actively involved in disseminating knowledge: Dr Calo holds two patents and has authored 170+ peer-reviewed publications. Also, in the last two years, he has given more than 18 invited presentations and keynotes at conferences and seminars and organised ten mini-symposia at international conferences. H-index: 21, sum of times cited ca. 3600.



**Zbigniew Kąkol,
AGH University of Science and Technology,
Kraków, Poland**

Zbigniew Kąkol is a Professor of physics at the Faculty of Physics and Applied Computer Science, AGH-University of Science and Technology, Kraków. AGH is his home university since 1977, when he has joined research team in Solid State Physics Department after receiving M. Sc. degree from the Department of Electrical Engineering, Electronics and Automatics, University of Mining and Metallurgy, Krakow. Ph. D. degree, he received from

the Department of Mathematics and Physics, Jagiellonian University, Krakow. From 1988 to 1991 he held postdoctoral research associate position in Chemistry Department, Purdue University, USA. In 1997 he got Professor position at the Faculty of Physics and Applied Computer Science, AGH-University of Science and Technology, Krakow. His extensive teaching experience covers courses in physics, solid state physics and computer science. Now, his research activity is focused on magnetism of solids and phase transitions in solids. He is an author of over 90 publications. H-index: 19, sum of times cited ca. 1000.



**Dominik Brands,
University of Duisburg-Essen,
Germany**

Dr.-Ing. Dominik Brands is a postdoctoral researcher and senior lecturer employed in the Institute of Mechanics at University of Duisburg-Essen (UDE). His main area of interest is focused on the multiscale simulations of heterogeneous materials and the high performance computation (HPC) in solid mechanics. Actually, he led three scientific projects funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) dealing with the homogenization of magneto-electric composites, degradation of fiber-reinforced high-performance concrete and analysis of microstructural residual stresses in hot bulk forming parts, respectively. Dr.-Ing. Brands is board member of the Center for Computational Sciences and Simulation at UDE. In addition to his research activities, he is member of the Scientific Computing Support Team assisting other UDE-researchers from all fields of computational sciences with focus on HPC. H-index: 6.



**Roger Andersson,
SWERIM,
Luleå, Sweden**

Dr Roger Andersson is employed as a Head of Research in SWERIM company. Responsible for a group of world-leading researchers and is part of the management team for the entire SWERIM. Together with SWERIM world-class experimental pilot and demo equipment, the group optimises and develops new processes in heat treatment and metal working processes. We have the capacity and ability to develop new metallic alloys including subsequent heating and metal working processes. Our physicists develops various commercial measurement and control systems for the metal manufacturing industry around the world. Together with theoretical studies, sensor development, data retrieving systems, FE simulations and advanced validation tools, SWERIM have a unique position to support and develop manufacturing processes for the steel and metal industry and its future challenges.

Plenary lectures

Monday

Chairman: Ulrich Prahl

9:00 Twin formation, propagation and intersections at the mesoscale
Irene J. Beyerlein



9:40 Industry 4.0 for the steel industry – Modelling and data handling
developments for the future
Roger Andersson



Tuesday

Chairman: Lukasz Rauch

14:00 Multiscale Computation of Dual Phase Steels using
Statistically Similar RVEs
Dominik Brands, Lisa Scheunemann, Jörg Schröder



Wednesday

Chairman: Piotr Bretkopf

9:00 DFT Computation of Materials Properties with WIEN2k
Zbigniew Kąkol, Waldemar Tokarz



9:40 Consistent modelling of chemo-mechanical interactions:
modeling evolution of metamorphic rocks
*Victor Calo, Santiago Clavijo, Luis Espath,
Eliot Fried, Adel Sarmiento*



QR codes lead to pdf files containing extended abstracts. Applications capable to read QR codes can be found in Google Play (for Android) or Apple App Store (for IOS).

Distribution Functions for the Description of Heterogeneous Metallic Microstructures

Monday morning – Room Aspen

Chairmen: Maciej Pietrzyk, Wolfgang Bleck

10:40 Correlation between microstructure and micromechanical properties of complex phase steels
Yuling Chang, Xiaoxiao Li, Christian Haase, Wolfgang Bleck



11:00 On mathematical aspects of evolution of dislocation density in metallic materials
Natalia Czyżewska



11:20 Phase transformation simulations based on coupled cellular automata/finite difference model
Mateusz Sitko, Maciej Pietrzyk, Adam Legwand, Lukasz Madej



11:40 On application of SSRVE and Multiple Levels Set method to phase transformations modelling in steels
Krzysztof Bzowski, Lukasz Rauch, Maciej Pietrzyk



12:00 Exploring possibility to predict gradients of microstructure in multiphase steels
Danuta Szeliga, Karolina Czechowicz, Krzysztof Bzowski, Maciej Pietrzyk



12:20 Effect of microstructural inhomogeneities on the cold headability of wire and rod multiphase steels
Roman Kuziak

Alloys

Monday morning – Room Zakopane

Chairman: Bartek Wierzba

- | | | |
|-------|--|---|
| 10:40 | Simulation of microstructure evolution during forging and heat treatment of Ti-6Al-3.5Mo-1.5Zr-0.3Si titanium alloy
<i>Artem Alimov, Sergey Stebunov, Nikolai Biba</i> |  |
| 11:00 | Development of digital material representation model of dual phase titanium alloy with lamellar/globular morphology of alpha phase
<i>Mateusz Mojżeszko, Mateusz Kwiecień, Krzysztof Muszka, Lukasz Madej</i> |  |
| 11:20 | In-situ EBSD investigation of Ti834 strong textured regions using dwell fatigue testing
<i>Beatriz F. Silva, Bradley P. Wynne, Krzysztof Muszka, Jakub Kawalko, Matthew J. Thomas, Katharine Fox</i> |  |
| 11:40 | Utilization of phase reconstruction algorithms for assessment of effect of texture and strain history in two phase titanium alloys
<i>Maciej Szymula, Mateusz Sternalski, Jakub Kawalko, Lukasz Madej, Krzysztof Muszka, Peter Davies, Bradley P. Wynne</i> |  |
| 12:00 | Analysis of the AZ31 alloy bars twisting during rolling in a three-high skew rolling mill
<i>Andrzej Stefanik, Piotr Sota, Sebastian Mróz</i> |  |
| 12:20 | 3D FEM modelling and experimental investigations of Mg/Al bimetallic bars rolling process in classic and modified grooves
<i>Sebastian Mróz, Andrzej Stefanik, Piotr Szota</i> |  |

High Order Finite Elements Methods and Computing

Monday afternoon I – Room Aspen

Chairman: Maciej Paszyński

13:40 Handling insensitivity in multi-physics inverse problems
using a complex evolutionary strategy
*Jakub Sawicki, Maciej Smolka,
Marcin Łoś, Robert Schaefer*



14:00 Multiscale FEM with DPG methodology
*Witold Cecot, Marta Oleksy,
Marek Klimczak, Mateusz Dryzek*



14:20 Framework for fast simulations of material science phenomena
with Cahn-Hilliard equations
*Grzegorz Gurgul, Maciej Paszyński,
Danuta Szeliga, Vladimir Puzyrev*



14:40 Isogeometric Residual Minimization Method
for Advection-Diffusion Problems
*Marcin Łoś, Maciej Paszyński,
Ignacio Muga, Victor Manuel Calo*



15:00 Framework for topographic mesh generation and
its application to the pollution simulations in Kraków area
*Krzysztof Podsiadło, Maciej Paszyński,
Albert Oliver Serra*



15:20 Comparison of stabilized SUPG and mixed FEM methods
for plastic flow
*Jan Bielański, Aleksander Siwek,
Kazimierz Chłoń, Krzysztof Banaś*



Alloys

Monday afternoon I – Room Zakopane I

Chairman: Bradley P. Wynne

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|-------|---|---|
| 13:40 | Predicting the material behaviour of AA6082 during hot deformation with means of a physical model
<i>Friedrich Krumphals, Ricardo Henrique Buzolin, Jules Franz Thierry Simonet Fotso, Cecilia Poletti</i> |  |
| 14:00 | A dissipation potential approach to describe flow instability in alloys during hot deformationg
<i>Peng Wang, Katharina Hogrefe, David Piot, Frank Montheillet, Maria Cecilia Poletti</i> |  |
| 14:20 | Superposition of the strengthening mechanisms of the microalloyed steel laminated composite processed by High Strain Rate Compression Test
<i>Marcin Kwiecień, Janusz Majta</i> |  |
| 14:40 | Model approach for description of internal oxidation of Ni-base superalloy
<i>Wojciech J. Nowak, Bartek Wierzba</i> |  |
| 15:00 | Practical use of experience in the numerical and physical modelling of nickel superalloys drawability
<i>Monika Hyrcza-Michalska</i> |  |
| 15:20 | Optimization of die geometry to increase the number of passes in constrained groove pressing
<i>Maciej Taczala, Ryszard Buczkowski, Michal Kleiber</i> |  |

Evolutionary Algorithms and Artificial Intelligence in Metallurgy and Materials Science – in Honour of Professor Nirupam Chakraborti

Monday afternoon I – Room Zakopane II

Chairman: Nirupam Chakraborti

13:40 Introduction –
presentation of prof. Nirupam Chakraborti achievements
Shubhabrata Datta

14:00 On Recent Trends in Applications of Genetic Algorithms
Wojciech Paszkowicz



14:20 Lattice parameter of Au down to 10 K: Towards application
for temperature calibration
*Wojciech Paszkowicz, Roman Minikayev,
Pawel Piszora*



14:40 Design and experimental trial of Ti composite with
bioactive surface for dental implant
*Kotheril Ashwathy Thomas, Swati De,
Kaustav Sarkar, Shubhabrata Datta*



15:00 Atomistic Simulation and Evolutionary Optimization
of Fe-Cr system
*Shubham Singhal, Apurva Sijaria, Venkatesh Pai,
Amlan Dutta, Nirupam Chakraborti*



15:20 Optimization of die geometry to increase the number
of passes in constrained groove pressing
*Sunil Kumar, Krishnaswamy Hariharan,
Digavalli Ravi Kumar*



High Order Finite Elements Methods and Computing

Monday afternoon II – Room Aspen

Chairman: Witold Cecot

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|-------|---|---|
| 16:00 | The FEM for analysis of quantum-dot system based on gradient theory
<i>Jan Sladek, Vladimir Sladek,
Miroslav Repka, Slavomir Hreck</i> |  |
| 16:20 | Hypergraph-grammar for projection-based interpolation algorithm over two-dimensional grids with triangular elements
<i>Anna Paszyńska, Jakub Ryzner,
Konrad Jopek, Maciej Paszyński</i> |  |
| 16:40 | Incremental POD and Custom Integration Schemes
<i>Pierre Phalippou, Salim Bouabdallah,
Piotr Breitkopf, Pierre Villon</i> |  |
| 17:00 | Optimization of the alternating direction splitting solver for three-dimensional finite difference simulations of Navier-Stokes problem
<i>Maciej Paszyński, Maciej Woźniak, Peter Minev</i> |  |
| 17:20 | Simulation of elastic wave propagation using the deformable discrete element method
<i>Jerzy Rojek, Nikhil Madan, Szymon Nosewicz</i> |  |
| 17:40 | An elastic-plastic torsion of multi-metallic and hollow bar – numerical experiment based on meshless methods
<i>Anita Uscilowska, Marta Chudzicka-Adamczak</i> |  |

Processes

Monday afternoon II – Room Zakopane I

Chairman: Krzysztof Muszka

- 16:00 ICME approach to modelling Magee effect of bainitic transformation during partial press hardening
Mingxuan Lin, Ulrich Prahl
- 16:20 Using neural networks to predict the flow curves and processing maps of TNM-B1
Johan Andreas Stendal, Markus Bambach, Aliakbar Emdadi, Mark Eisentraut, Irina Sizova, Sabine Weiß
- 16:40 Finite element modelling of forging with additional transverse die motion
Marek Tkocz
- 17:00 Numerical simulation of two-step degradation during thermal debinding in components realized by Metal Injection Moulding
Agne Aboubakry, Barrière Thierry
- 17:20 Roll gap calculations for automation integrated finite element analysis in multipass hot strip rolling simulations
Joonas Ilmola, Jari Larkiola, Oskari Seppälä, Juha Jokisaari
- 17:40 Modelling of b-pillar manufacturing made of 7075 aluminum
Zbigniew Gronostajski, Paweł Kaczyński, Sławomir Polak, Jakub Krawczyk, Karol Jaśkiewicz, Mateusz Skwarski



Evolutionary Algorithms and Artificial Intelligence in Metallurgy and Materials Science – in Honour of Professor Nirupam Chakraborti

Monday afternoon II – Room Zakopane II

Chairman: Shubhabrata Datta

16:00 Decreasing of guides changing with pass design optimization
on continuous rolling mill using genetic algorithm
*Anemari Gračnar, Miha Kovačič,
Miran Brezočnik*



16:20 Modified PSO method applied to identification
of material model parameters
Lukasz Sztangret, Danuta Szeliga



16:40 Data driven modeling and tri-objective optimization
of noisy dataset in blast furnace iron making process
Bashista Kumar Mahanta, Nirupam Chakraborti



17:00 Morphological Evolution for Pipe Inspection Using ROS
*Ahmed Hallawa, Touhidur Rahman,
Giovanni Iacca, Gerd Ascheid*



17:20 Modeling of direct chill casting process of aluminium alloys
under influence of electromagnetic field
Šarler Božidar

Multiscale Modelling

Tuesday afternoon I – Room Aspen

Chairman: *Thierry Barrière*

14:40 Identification of parallel cellular automata static recrystallization model parameters

*Mateusz Sitko, Konrad Perzynski,
Krzysztof Muszka, Lukasz Madej*



15:00 Numerical analysis of microstructural residual stresses in hot bulk forming parts under specific cooling

*Sonja Uebing, Dominik Brands, Lisa Scheunemann,
Mohammad Sarhil, Rainer Niekamp, Jörg Schröder*



15:20 Development of the Kinetic Monte Carlo model for simulation of laser ablation

*Dawid Zych, Konrad Perzynski,
Lukasz Madej*



15:40 Numerical analysis of damage during hot forming

*Joanna Szyndler, Muhammad Imran,
Muhammad Junaid Afzal, Markus Bambach*



16:00 Adhesive wear mechanism in a hybrid model of tool wear in hot forging process

*Marek Wilkus, Lukasz Rauch,
Danuta Szeliga, Maciej Pietrzyk*



16:20 A tool for computer-aided calculation of grain size

Oskari Seppälä, Sampo Uusikallio, Jari Larkiola



Processes

Tuesday afternoon I – Room Zakopane I

Chairman: Tomasz Wejrzanowski

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|-------|---|---|
| 14:40 | Modelling of high-temperature corrosion phenomena by the cellular automata approach
<i>Katrin Jahns, Kamil Balinski,
Jürgen Wübbelmann, Ulrich Krupp</i> |  |
| 15:00 | Model the properties nodular cast iron with carbides with use of the artificial intelligence methods
<i>Dorota Wilk-Kolodziejczyk, Krzysztof Jaśkowiec,
Zenon Pirowski, Waldemar Uhl, Krzysztof Regulski</i> |  |
| 15:20 | The influence of defects on mechanical properties in molybdenum disulfide flat material
<i>Wacław Kuś, Mohammed Javeed Akhter,
Adam Mrozek, Tadeusz Burezyński</i> |  |
| 15:40 | A model-free data-driven approach for inelastic material behavior
<i>Robert Eggersmann, Stefanie Reese,
Laurent Stainier, Trenton Kirchdoerfer,
Michael Ortiz</i> |  |
| 16:00 | A simulation study on the closed-loop control of screw press forgings using the blow energy as control input
<i>Markus Bambach, Benjamin Sydow,
Markus Hirtler, Alexander Sviridov</i> |  |
| 16:20 | Failure mechanisms analysis in micro-clinched joints under loading
<i>Wojciech Presz, Robert Cacko</i> |  |

Evolutionary Algorithms and Artificial Intelligence in Metallurgy and Materials Science – in Honour of Professor Nirupam Chakraborti

Tuesday afternoon I – Room Zakopane II

Chairman: Danuta Szeliga

14:40 Mechanical properties of micro-alloyed steels studied through an evolutionary deep neural net
*Swagata Roy, Bhupinder Singh Saini,
Debalay Chakrabarti, Nirupam Chakraborti*



15:00 Effect of ionic liquid addition on PVDF – A density functional theory study
Tarun Kumar Kundu, Ranjini Sarkar



15:20 Selection of raw material for pulp and paper making through an integrated MCDM and evolutionary Algorithms approach
*Meenu Singh, Millie Pant,
Ravi D. Godiyal, Arvind Kumar Sharma*



15:40 A Fuzzy DEA approach for efficiency analysis: A case study of paper mills in India
*Natthan Singh, Sunil Kumar Jauhar,
Millie Pant, Sushil Kumar*



16:00 Meta-heuristics for Branched Network Problems
Bilal, Millie Pant



16:20 Data-driven Evolutionary Deep Learning
Nirupam Chakraborti, Bhupinder Singh Saini



Multiscale Modelling

Tuesday afternoon II – Room Aspen

Chairman: Jan Kusiak

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|-------|--|---|
| 17:00 | Discrete model of pearlitic transformation for medium carbon and eutectoid steels
<i>Monika Pernach</i> |  |
| 17:20 | The three-scale crystal plasticity model
<i>Karol Frydrych,
Katarzyna Kowalczyk-Gajewska</i> |  |
| 17:40 | The influence of centrifugal force on phases distribution in two-phase zone
<i>Daria Serafin, Bartek Wierzba</i> |  |
| 18:00 | Cellular automata model of carbonitrides precipitation process in steels
<i>Przemysław Marynowski, Henryk Adrian,
Mirosław Głowacki</i> |  |
| 18:20 | Adaptive multiscale model of precipitation kinetics
<i>Piotr Macioł, Danuta Szeliga,
Łukasz Sztangret</i> |  |
| 18:40 | Possibilities of the numerical solution of the dislocation evolution equation for stochastic variables
<i>Ivan Milenin, Łukasz Rauch, Maciej Pietrzyk</i> |  |

Processes

Tuesday afternoon II – Room Zakopane I

Chairman: Sebastian Mróz

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|-------|---|--|
| 17:00 | Modelling of small scale punch test for acquisition of design data
<i>Victoria Brown, Bradley P. Wynne,
Konrad Perzyński</i> |  |
| 17:20 | Experimental and numerical investigations on the forming behaviour of hybrid structures produced by non-kinematical constraint manufacturing processes
<i>Bernd-Arno Behrens, Alexander Chugreev,
Henrik Schulze</i> |  |
| 17:40 | Design of open-porous materials for high temperature catalysis
<i>Tomasz Wejrzanowski, Jarosław Milewski,
Karol Cwieka, Samih Haj Ibrahim</i> |  |
| 18:00 | Effect of the chemical composition and microstructure on the mechanical properties and wear resistance of multiphase standard gauge rails
<i>Roman Kuziak, Tomasz Zygmunt</i> |  |
| 18:20 | The numerical investigation of the welding of hull sections with respect to welding distortion
<i>Janusz Pikula, Tomasz Pfeifer,
Jerzy Niagaj</i> |  |
| 18:40 | Modelling of the phase transformations during laser welding process
<i>Aleksander Siwek</i> |  |

Evolutionary Algorithms and Artificial Intelligence in Metallurgy and Materials Science – in Honour of Professor Nirupam Chakraborti

Tuesday afternoon II – Room Zakopane II

Chairman: Nirupam Chakraborti

17:00 Design of high-manganese austenitic steel
with particle swarm optimization
Sushrita Dash, Amlan Dutta



17:20 The effect of Pt and P co-doping on the electronic
and optical properties of graphitic carbon nitride
*Deepak Kumar Gorai,
Tarun Kumar Kundu*



17:40 A hybrid constrained many-objective optimization approach
towards production of hot rolled micro alloyed steels
*Prateek Mittal, Affan Malik,
Itishree Mohanty, Kishalay Mitra*



18:00 Summary of the minisymposiums
Nirupam Chakraborti

Applications of Artificial Intelligence

Wednesday morning – Room Aspen

Chairman: Danuta Szeliga

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|-------|--|--|
| 10:40 | Modified Takagi-Sugeno fuzzy identification method to modelling and control in materials engineering
<i>Andrzej Macioł, Piotr Macioł, Barbara Mrzygłód</i> |  |
| 11:00 | The conversion in the production of metallurgical assisted decision making system
<i>Dorota Wilk-Kołodziejczyk</i> |  |
| 11:20 | A multi-stage process of development of a neural networks based expert system supporting the determination of tool wear in the forging process
<i>Andrzej Opaliński, Barbara Mrzygłód</i> |  |
| 11:40 | Deep learning method for grain size classification in nickel alloys
<i>Bartłomiej Mulewicz, Grzegorz Korpala, Jan Kusiak, Ulrich Prahl</i> |  |
| 12:00 | Application of deep learning to determine the optimal end of blowing at the Basic Oxygen Furnace
<i>Łukasz Rauch, Kamil Dudek, Luc Van De Putte</i> |  |

List of Participants

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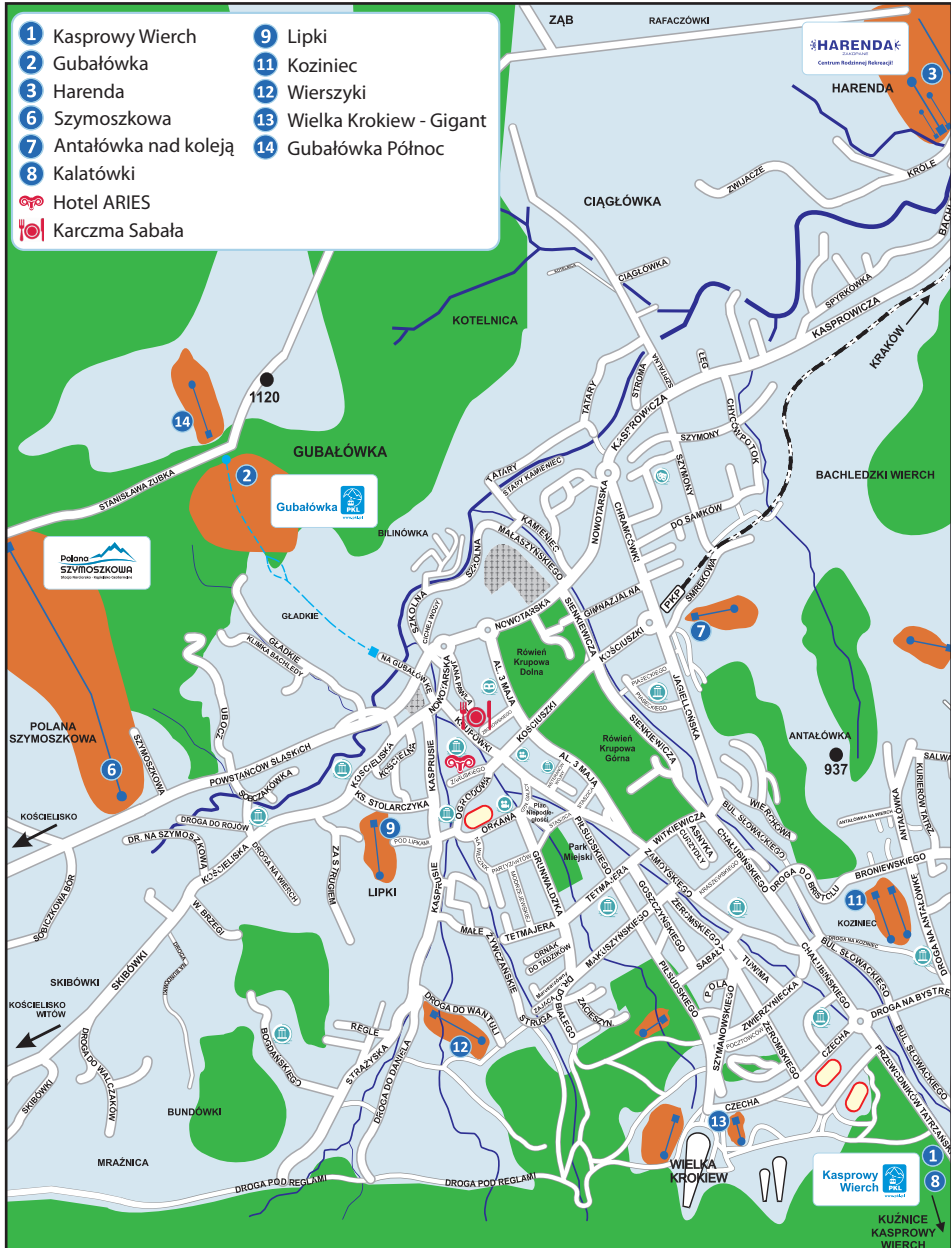
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Maps of Zakopane



Source: www.zakopane.pl/o-nas/materialy-do-pobrania

