Conference Programme

List of Participants

January 15–18, 2017, Zakopane, Poland

International Scientific Committee

Markus BAMBACH	Brandenburg University of Technology, Cottbus, Germany
Dorel BANABIC	University of Cluj-Napoca, Romania
Thierry BARRIERE	FEMTO-ST Institute, Besancon, France
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Maciej PASZYŃSKI	AGH University of Science and Technology, Kraków, Poland
Pavel PETROV	Moscow State Technical University, Russia
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
Bartłomiej WIERZBA	Rzeszow University of Technology, Poland
Bradley WYNNE	The University of Sheffield, UK

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Franciszek GROSMAN	Silesian University of Technology, Katowice, Poland

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Fundacja Studentów i Absolwentów Akademii Górniczo-Hutniczej w Krakowie
ACADEMICA

Partners

AGH

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

POLITECHNIKA ŚLĄSKA

Department of Materials Technology
Faculty of Materials Science and Metallurgy
SILESIAN UNIVERSITY OF TECHNOLOGY

Supporting Organisations

ECCOMAS Thematic Conference

European Community on Computational Methods in Applied Sciences
ECCOMAS

PAN

Metal Forming Section, Metallurgy Committee
POLISH ACADEMY OF SCIENCES

Centre of Computer Technology in Metallurgy and Materials Science
CEKOMAT

pacm

Polish Association for Computational Mechanics

KomPlasTech History

Number	Year	Place	Number of papers
I	1993	AGH Kraków	18
II	1995	Wisła	26
III	1996	Koninki	27
IV	1997	Ustroń-Jaszowiec	28
V	1998	Bukowina Tatrzańska	36
VI	1999	Szczyrk	28
VII	2000	Krynica-Czarny Potok	35
VIII	2001	Korbielów	24
IX	2002	Szczawnica	41
X	2003	Wisła-Jawornik	33
XI	2004	Zakopane	46
XII	2005	Ustroń	33
XIII	2006	Szczawnica	42
XIV	2007	Zakopane	53
XV	2008	Korbielów	28
XVI	2009	Krynica-Zdrój	54
XVII	2010	Białka Tatrzańska	31
XVIII	2011	Zakopane	86
XIX	2012	Szczyrk	38
XX	2013	Zakopane	84
XXI	2014	Wisła Malinka	37
XXII	2015	Krynica-Zdrój	79
XXIII	2016	Wisła	31
XXIV	2017	Zakopane	76

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Venue

ARIES HOTEL & SPA ZAKOPANE

ARIES Hotel & SPA
Mariusza Zaruskiego 5, Zakopane

Sunday, 15th January

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

Monday, 16th January

9:00–10:20 Plenary lectures, *Room Aspen, page 11*
10:20–10:40 Coffee break
10:40–12:40 Lectures:
Material testing, *Room Aspen, page 12*
Complex materials, *Room Zakopane, page 13*
12:40–13:40 Lunch, *Halka Restaurant*
13:40–15:40 Lectures:
Multiscale modelling, *Room Aspen, page 14*
Advanced Mathematical Modelling, *Room Zakopane, page 15*
15:40–16:00 Coffee break
16:00–18:00 Lectures:
Computing, *Room Aspen, page 16*
Phase transformations, *Room Zakopane, page 17*
19:00 Regional evening, *Bąkowo Zohylina Niżnio Restaurant (Piłsudskiego 6, Zakopane)*

Tuesday, 17th 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 Lectures:
Numerical modelling of material processing – in honour of Professor Maciej Pietrzyk, *Room Aspen, page 18*
Genetic algorithms in materials design and processing, *Room Zakopane, page 19*
16:40–17:00 Coffee break
17:00–19:00 Lectures:
Numerical modelling of material processing – in honour of Professor Maciej Pietrzyk, *Room Aspen, page 20*
Genetic algorithms in materials design and processing, *Room Zakopane, page 21*
20:00 Conference dinner, *Halka Restaurant*

Wednesday, 18th January

9:00–10:20 Plenary lectures, *Room Aspen, page 11*
10:20–10:40 Coffee break
10:40–12:40 Lectures:
Modelling of processes and applications of artificial intelligence, *Room Aspen, page 22*
Modelling of processes and applications of artificial intelligence, *Room Zakopane, page 23*
12:40–13:40 Lunch, *Halka Restaurant*

Plenary speakers

Francisco Chinesta, Ecole Centrale de Nantes, France

Francisco Chinesta is currently Professor of computational physics at the Ecole Centrale of Nantes (France), researcher at the High Performance Computing Institute. He was AIRBUS Group chair professor and he is at present ESI Group chair professor. He is fellow of the "Institut Universitaire de France", Fellow of the Spanish Royal Academy of Engineering. He received many scientific awards in four different fields (bio-engineering, material forming processes, rheology and computational mechanics). He is author of 230 papers in peer-reviewed international journals. He is president of the French association of computational mechanics (CSMA) and director of the CNRS research group (GdR) on model order reduction techniques for engineering sciences. He is editor and associate editor of many journals.

Stefanie Reese, RWTH Aachen University, Germany

Professor Stefanie Reese is the head of the Institute if the Applied Mechanics at the Aachen University. The institute concentrates on the modelling of complex materials as well as on the efficient numerical simulation of practically relevant problems. Another research field are innovative numerical methods, e.g. in the areas of finite element technology, model reduction and phase field simulation. The focus of the experimental branch of research lies on the multiaxial mechanical behaviour of soft materials (e.g. biomaterials) but also metals. The institute does research on composite materials and structures, medical technology and biomechanics, innovative applications of mechanics in civil engineering, production technology.

Christof Sommitsch, Graz University of Technology, Austria

Professor Christof Sommitsch is head of the Institute of Materials Science, Joining and Forming at Graz University of Technology in Austria. The Institute is an international centre for developing, modelling and joining socially relevant, future-oriented, high-performance structural materials. The co-author of the lecture, Professor Bernhard Sonderegger is deputy head of the Institute of Materials Science, Joining and Forming and leader of the Modelling and Simulation group. Surya Deo Yadav is former PhD student and Bernhard Krenmayr is PhD student at the Institute.

Ryszard Buczkowski, Maritime University of Szczecin, Poland

Professor Ryszard Buczkowski's scientific research is focus on finite element modelling of contact problems with non-linear properties of the interface and statistical modelling of rough surfaces. He was an associate professor at Faculty of Marine Technology of the Technical University of Szczecin, head of the Division of Applied Mechanics and simultaneously chair of the Department of Mechanics and Transport Machines at the same faculty. Now Professor Ryszard Buczkowski is an associate professor at Maritime University of Szczecin and head of the Division of Computer Methods at Faculty of Economics and Transport Engineering.

Axel Rimnac, Primetals Technologies Austria GmbH

Axel Rimnac works in Primetals company. Primetals Technologies is a globally operating enterprise that offers state-of-the-art technologies, automation systems, plants, products and services for the iron, steel and nonferrous industrial sectors. Its solutions range from ironmaking, steelmaking, continuous casting, hot and cold rolling as well as non-ferrous rolling and processing covering conventional routes or mini mill concepts as well as newly developed green technologies such as the Arvedi ESP endless strip production process. Its competencies cover integrated plants and solutions, electrics and automation as well as process and technology consulting and life cycle services. Axel Rimnac is group leader of the metallurgy group for ESP (endless strip production) and program manager of through-process know-how metallurgical modeling program which covers main activities in metallurgical modeling ranging from casting, hot and cold-rolling as well as annealing and galvanizing.

Plenary lectures

Room Aspen

Monday

Chairman: Tadeusz Burczyński

9:00 Computational vademecums, APPs and data-based simulations at the 4th industrial revolution
Francisco Chinesta, Emmanuelle Abisset-Chavanne, Jose V. Aguado, Domenico Borzacchiello, Elena Lopez, Jean-Louis Duval

9:40 Multiscale modelling – advantages and challenges in the context of manufacturing processes
Stefanie Reese, Julian Kochmann, Yalin Kiliclar, Annika Radermacher, Stephan Wulfinghoff

Tuesday

Chairman: Zbigniew Gronostajski

14:00 Modelling of the microstructural evolution during creep of high temperature steels
Christof Sommitsch, Bernhard Sonderegger, Surya Deo Yadav, Bernhard Krenmayr

Wednesday

Chairman: Wacław Kuś

9:00 Elasto-plastic contact problem for rough surfaces
Ryszard Buczkowski, Arkadiusz Rzeczycki

9:40 Microstructure model aided industrial implementation of advanced steel grades
Axel Rimnac, Simon Grosseiber, Sergey Bragin, Bernd Linzer, Christoph Krüger

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).

Material testing

Monday morning – Room Aspen

Chairman: Markus Bambach

10:40 Experimental investigations on the transformation-induced plasticity in a high tensile steel under varying thermo-mechanical loading
Bernd-Arno Behrens, Anas Bouguecha, Christian Bonk, Alexander Chugreev

11:00 Analysis of bainite onset during cooling following prior deformation at different temperatures
Aarne Pohjonen, Antti Kaijalainen, Mahesh Somani, Jari Larkiola

11:20 External force field during diffusion-sedimentation in condensed matter
Bartłomiej Wierzba, Wojciech Jerzy Nowak, Patrycja Wierzba, Jan Sieniawski

11:40 Oxidation kinetic of IN 792 during early stage of high temperature exposure
Wojciech Jerzy Nowak, Patrycja Wierzba, Bartłomiej Wierzba, Jan Sieniawski

12:00 Analysis of the compression testing of functionally graded microalloyed steel
Marcin Kwiecień, Szymon Bajda, Janusz Majta, Łukasz Lisiecki

12:20 Study of the effects of strain path changes on mechanical response of microalloyed austenite using three point bending
Paulina Lisiecka-Graca, Krzysztof Muszka, Janusz Majta

Complex materials

Monday morning – Room Zakopane

Chairman: Jose Cesar De Sa

10:40 Finite element modelling of titanium aluminides
Irina Sizova, Alexander Sviridov, Martin Günther, Markus Bambach

11:00 Modelling the effect of through process thermo-mechanical processing on the microstructure and properties of ZERON® 100 Super Duplex stainless steel
Jamie Pennington, Bradley P. Wynne, Glenn Byrne

11:20 3D modelling of micro hot embossing process with amorphous thermoplastic polymers
Gang Cheng, Thierry Barrière, Jean-Claude Gelin, Mohamed Sahli

11:40 *hp*-adaptive multiscale FEM in modelling of heterogeneous viscoelastic materials
Marek Klimczak, Witold Cecot

12:00 Finite element modelling of supertransus Ti-6Al-4V extrusions
James D. Pollard, Andrew Watford, Martin Jackson, Bradley P. Wynne

12:20 Mathematical model of austenitization process in ductile iron
Izabela Olejarczyk-Wożeńska, Barbara Mrzygłód, Henryk Adrian, Mirosław Głowacki

Multiscale modelling

Monday afternoon I – Room Aspen

Chairman: Jerzy Rojek

13:40 Finite-element implementation
of crystal plasticity with twinning
Katarzyna Kowalczyk-Gajewska,
Karol Frydrych

14:00 Numerical investigation of the laser welding
of air conditioner components
Janusz Pikuła, Marek Stanisław Węglowski,
Jerzy Dworak, Grzegorz Ziobro, Adam Szafron

14:20 Numerical modelling of nanoindentation test of deposited layers
Konrad Perzyński, Grzegorz Cios,
Grzegorz Szwachta, Dawid Zych,
Piotr Bała, Łukasz Madej

14:40 Crystal plasticity material model development for multiscale
numerical simulation of the incremental forming process
Joanna Szyndler, Laurent Delannay,
Wojciech Wajda, Łukasz Madej

15:00 Dynamical and kinematical computations of intensities
of electron beams reflected from growing surfaces
Zbigniew Mitura

15:20 CA/MC based generators of 3D microstructures
of porous metallic materials
Adam Legwand, Konrad Perzyński, Łukasz Madej

Advanced Mathematical Modelling

Monday afternoon I – Room Zakopane

Chairman: Bradley Wynne

13:40 Towards intelligent materials testing with reduced experimental effort for hot forming
Markus Bambach, Muhammad Imran, Johannes Buhl, Sebastian Härtel, Birgit Awiszus

14:00 Supercritical debinding of component made by metal injection moulding
Alexandre Royer, Thierry Barrière, Jean-Claude Gelin

14:20 The method of Riemann in pressure-dependent plasticity under plane strain conditions
Sergei Alexandrov

14:40 On the specifics of modelling of rotary forging processes
Bhaskaran Krishnamurthy, Olga Bylya, Lisa Muir, Alastair Conway, Paul Blackwell

15:00 The MLPG in gradient theory for size-dependent magnetoelectroelasticity
Jan Sladek, Vladimir Sladek, Slavomír Hrček

Computing

Monday afternoon II – Room Aspen

Chairman: Witold Cecot

16:00 Open source JAVA implementation of the parallel multi-thread alternating direction isogeometric L2 projections solver for material science simulations
Grzegorz Gurgul, Maciej Woźniak, Marcin Łoś, Danuta Szeliga, Maciej Paszyński

16:20 Graph grammar for simultaneous construction of three dimensional tetrahedral finite element mesh and element partition trees generating orderings for the multi-frontal solver algorithm
Anna Paszyńska

16:40 Finite element core calculations on GPUs
Krzysztof Banaś, Jan Bielański, Kazimierz Chłoń, Filip Krużel

17:00 GPU-bitonic sorter algorithm with SM application
Grzegorz Korpała

17:20 Study on parallelization of cellular automata static recrystallization model based on MPI standard
Mateusz Sitko, Łukasz Madej

17:40 A computational fluid dynamics analysis of transport enforced by Marangoni effect during laser welding
Aleksander Siwek

Phase transformations

Monday afternoon II – Room Zakopane

Chairman: Anne Marie Habraken

16:00 Modelling phase transformations in nuclear forgings using experimentally establish values of Cp_{eff}
Michael P. Howson, Bradley P. Wynne, Jesus Talamantes-Silva

16:20 Modelling the effect of phase transformations on cooling rate during quenching in nuclear forgings using effective heat capacity
Michael P. Howson, Bradley P. Wynne, Peter S. Davies, Jesus Talamantes-Silva

16:40 Influence of the laboratory measurements errors on the phase transformation model identification
Daniel Bachniak, Łukasz Rauch, Danuta Szeliga, Maciej Pietrzyk

17:00 On the applicability of JMAK-type model in predicting IN718 microstructural evolution
Nicola Stefani, Olga Bylya, Aleksey Reshetov, Paul Blackwell

17:20 Modelling of bainitic transformation during cooling of rails
Monika Pernach, Roman Kuziak, Władysław Zalecki, Tomasz Zygmunt, Maciej Pietrzyk

17:40 Sensitivity analysis, identification and extending predictive capabilities of the phase transformation model based on the control theory
Ivan Milenin, Krzysztof Bzowski, Łukasz Rauch, Maciej Pietrzyk

Numerical modelling of material processing – in honour of professor Maciej Pietrzyk

Tuesday afternoon I – Room Aspen

Chairman: Jan Kusiak

14:40 Models of various complexity for description of mechanisms occurring during bainitic transformation in steels
Krzysztof Bzowski, Roman Kuziak, Zofia Kania, Łukasz Rauch, Maciej Pietrzyk

15:00 A phase-field approach in material failure modelling
Jose M.A. Cesar de Sa, Erfan Azinpour

15:20 Thermal history modelling to understand microstructures observed in repair technology of Ti-6Al-4V
Hoang Tran, Tchuindjang Tchoufang, Hakan Paydas, Ruben Jardin, Raoul Carrus, Jacqueline Lecomte Beckers, Anne Habraken

15:40 Modelling of sintering at atomistic, microscopic and macroscopic scales
Jerzy Rojek, Szymon Nosewicz, Marcin Maździarz, Piotr Kowalczyk, Krzysztof Wawrzyk

16:00 The method of searching for the new, two-dimensional graphene-like materials with predefined isotropic mechanical properties
Adam Mrozek, Wacław Kuś, Tadeusz Burczyński

16:20 Magnesium alloy ZE20 extrusion model development for the simulation and prediction of industrial forming processes
John E. Plumeri, Wojciech Z. Misiolek

Genetic algorithms in materials design and processing

Tuesday afternoon I – Room Zakopane

Chairman: Nirupam Chakraborti

14:40 Optimization of vanadium micro-alloyed steel composition for use in cold environments using evolutionary data-driven modelling
Bhupinder Singh Saini, Debalay Chakrabarti, Nirupam Chakraborti

15:00 Performance assessment of Indian paper industries supply chain through DEA and soft computing technique: a case study
Sunil Kumar Jauhar, Millie Pant

15:20 Differential evolution approach for optimization of selected biochemical processes
Ashish M. Gujarathi, Badria Al-Siyabi, Nallusamy SivaKumar, Manjusha M. Mathew

15:40 Usage of evolutionary methods in Štore Steel Ltd. steel plant
Miha Kovačič

16:00 Modelling of coke formation in industrial steam reformer and its multiobjective optimization
Amrish Kumar, Manojkumar Ramteke

16:20 On data-driven modelling of blast furnace
Nirupam Chakraborti, Bashista Kumar Mahanta,

Numerical modelling of material processing – in honour of professor Maciej Pietrzyk

Tuesday afternoon II – Room Aspen

Chairman: Jan Kusiak

17:00 Single block based 3D simulation of Linear Friction Welding of titanium alloys
Dario Baffari, Gianluca Buffa, Livan Fratini, Fabrizio Micari

17:20 Analysis of martensitic steel bracket loads
Sławomir Polak, Zbigniew Gronostajski, Jakub Krawczyk, Władysław Chorzępa

17:40 State of the art in integrated modelling of coiling and uncoiling process using the reversing hot rolling as an example
Alexander Nam, Andriy Milenin, Łukasz Rauch, Maciej Pietrzyk, Rudolf Kawalla

18:00 Numerical model of thin metal film heating using the boundary element method
Ewa Majchrzak, Bohdan Mochnacki

18:20 Artificial intelligence in computational mechanics: towards manifold learning approach
Piotr Breitkopf

15:40 Role of optimization and inverse analysis in modelling and design of metals processsing
Jan Kusiak

Genetic algorithms in materials design and processing

Tuesday afternoon II – Room Zakopane

Chairman: Nirupam Chakraborti

17:00 Optimization of machining parameters in turning of MMCs using GA with PCA coupled GRA
Umesh Khandey, Sudarsan Ghosh, Krishnaswamy Hariharan

17:20 Evolutionary intelligence in design of novel high temperature $xBi(Me)O_3$–$(1–x)$ $PbTiO_3$ family piezoelectric materials
Kakali Jana Mandal, P. P Chattopadhyay, Subhas Ganguly

17:40 Evolutionary approach to materials design and engineering: A short review of recent advances
Wojciech Paszkowicz

18:00 Evaluation of optimization strategies dedicated to multistage processes
Piotr Jarosz, Jan Kusiak, Stanisław Małecki, Paweł Morkisz, Piotr Oprocha, Wojciech Pietrucha, Łukasz Sztangret

Modelling of processes and applications of artificial intelligence

Wednesday morning – Room Aspen

Chairman: Łukasz Rauch

10:40 Extrusion of the SPR Micro-Rivets with complex micro-die
Wojciech Presz, Robert Cacko

11:00 Micro-blanking with mutual calibration
Wojciech Presz, Robert Cacko

11:20 The simulation and measurement of temperature of steel wires in high speed drawing process
Maciej Suliga, Piotr Szota, Sebastian Mróz

11:40 Text mining as a tool to develop semantic knowledge bases in the field of metallurgy
Krzysztof Regulski

12:00 Possibilities of SWRL application to computer system supporting cooperation in a supply chain
Krzysztof Regulski, Gabriel Rojek, Grzegorz Dobrowolski

12:20 Numerical simulation of microstructure evolution involving recrystallization phenomena during multistep hot strip rolling schedules
Grzegorz Smyk, Danuta Szeliga

Modelling of processes and applications of artificial intelligence

Wednesday morning – Room Zakopane

Chairman: Danuta Szeliga

10:40 FE and physical modelling of plastic flow the two-layer Mg/Al materials
Sebastian Mróz, Piotr Szota, Andrzej Stefanik

11:00 FEM-aided roll pass design of ribbed sole-plates rolling process
Sebastian Mróz, Piotr Szota, Tomasz Zygmunt

11:20 Study on spring-back effect
Jakub Józef Krawczyk, Zbigniew Jerzy Gronostajski

11:40 The problems of numerical modeling of sheet metal stamping processes with high-strength materials
Monika Hyrcza-Michalska

12:00 The conversion in the production of metallurgical assisted decision making system
Dorota Wilk-Kołodziejczyk, Stanisława Kluska-Nawarecka, Edward Nawarecki, Krzysztof Jaśkowiec

12:20 Semi-dynamic domain oriented WEB crawling and information extraction
Andrzej Opaliński, Mirosław Głowacki

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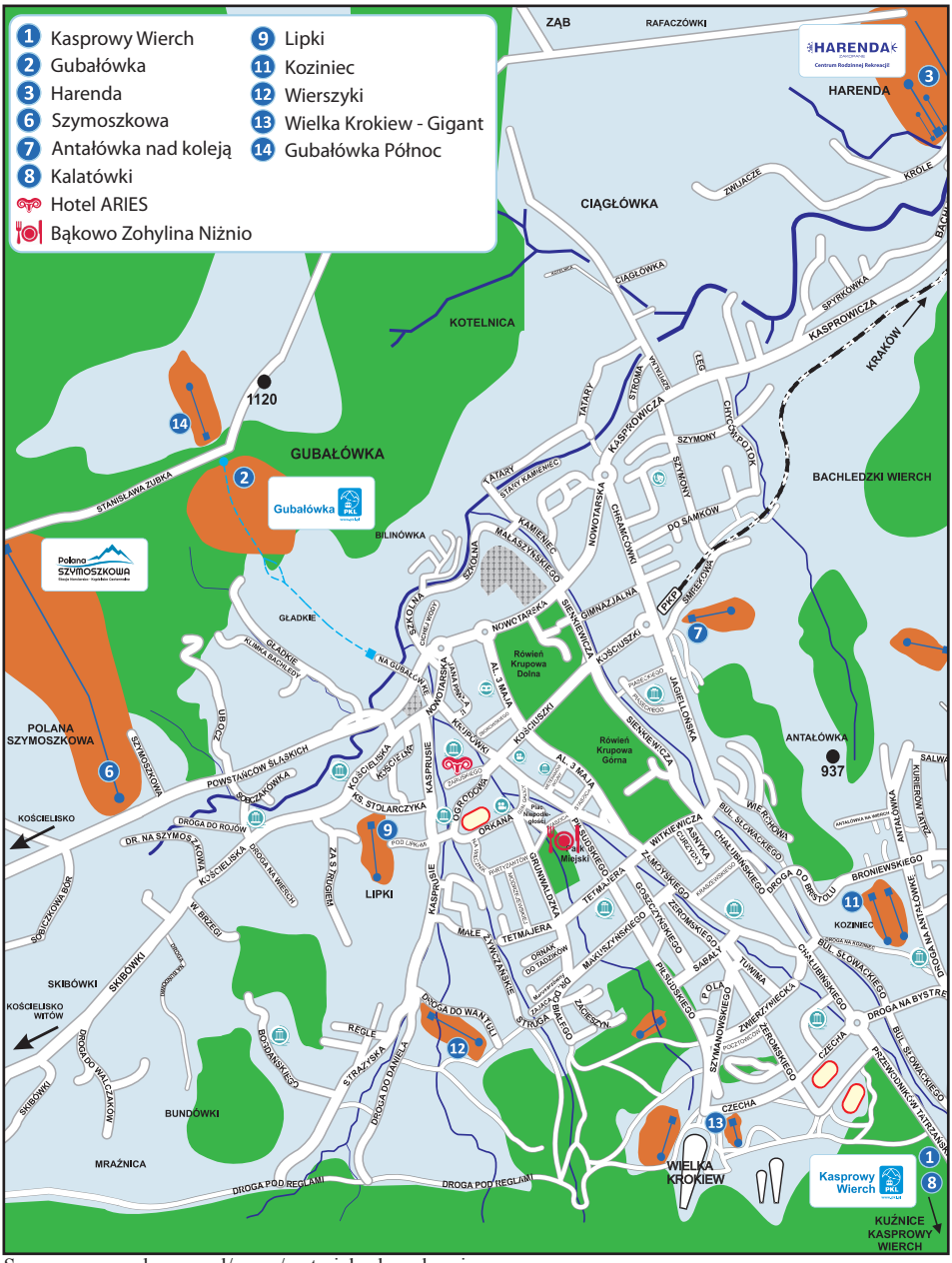
Maps of Zakopane



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

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