ESAFORM 2017 - DETAILED PROGRAMME

MS1 Formability of metallic materials			
Wednesday, 26th April			
Time	**MS1**	**Mini-Symposia**	**Location**
09:20 – 09:40	111	**Formability and macroscopic shearing of a titanium alloy Ti-6Al-4V under channel die compression** Henri Francillette and Christian Garand	**Theatre**
09:40 – 10:00	112	**Counter measures to effectively reduce end flare** Matthias Moneke and Peter Groche	
10:00 – 10:20	113	**Study of high strain rate effect on sheet formability based on Nakazima test** Edoardo Mancini, Marco Sasso, Gianluca Chiappini, Archimede Forcellese and Michela Simoncini	
10:20– 10:40	122	**FEA-based Development of a New Tool for Systematic Experimental Validation of Nonlinear Strain Paths and Design of Test Specimens** Annika Weinschenk and Wolfram Volk	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	124	**Influence of microscopic strain heterogeneity on the formability of martensitic stainless steel** Alvise Miotti Bettanini, Laurent Delannay, Pascal Jacques, Thomas Pardoen, Guillaume Badinier and Jean-Denis Mithieux.	**Theatre**
11:30 – 11:50	127	**Investigation on Flange Deformation Behavior of Duplex Embossed Sheet Metal subjected to Deep Drawing** Wuyang Liu and Takashi Iizuka	
11:50 – 12:10	129	**Development of Draw-bending Testing Method Using Digital Image Correlation System** Chiharu Sekiguchi, Tomoyuki Hakoyama, Toshihiko Kuwabara and Hiroshi Fukiharu	
12:10 – 12:30	168	**Effect of the Determination Method of the Material Parameters on the Accuracy of the Hole Expansion Simulation for Cold Rolled Steel Sheet** Hayato Nakano, Tomoyuki Hakoyama and Toshihiko Kuwabara	
12:30– 12:50	198	**Mechanical Behavior And Modelisation Of Ti-6Al-4V Titanium Sheet Under Hot Stamping Conditions** Quentin Sirvin, Luc Penazzi, Vincent Velay and Rebecca Bonnaire	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	205	**Hole expansion test of third generation steels** Julen Agirre, Joseba Mendiguren, Eneko Saenz de Argandoña and Lander Galdos	**Theatre**
15-20 – 15:40	210	**Large Strain Cruciform Biaxial Testing for FLC Detection** Baran Güler and Mert Efe	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	343	**Crystal plasticity assisted prediction on the yield locus evolution and forming limit curves** Junhe Lian, Wenqi Liu, Fuhui Shen and Sebastian Münstermann	**Theatre**
16:30 – 16:50	4	**Texture-based formability prediction for Mg wrought alloys ZE10 and AZ31** Dirk Steglich and Youngung Jeong	
16:50 – 17:10	37	**Modification of Tribological Conditions for Influencing the Material Flow in Bulk Forming of Microparts from Sheet Metal** Marion Merklein, Ulf Engel, Kolja Andreas, Martin Kraus and Tommaso Stellin	
17:10 – 17:30	71	**Forming Limit Curves Determined In High-Speed Cupping Tests And Predicted By A Strain Rate Sensitive Model** Nathalie Weiß-Borkowski, Junhe Lian, Thorsten Marten, Thomas Tröster, Sebastian Münstermann and Wolfgang Bleck	
17:30 – 17:50	121	**Characterising Ductility of 6xxx-Series Aluminium Sheet Alloys at Combined Loading Conditions** Philipp Henn, Mathias Liewald and Manfred Sindel	
Thursday, 27th April			
Time	**MS1**	**Mini-Symposia**	**Location**
09:30 – 09:50	213	**The Influence of Composition on Hot Tensile Behaviour in Silicon-Killed Boron Microalloyed Steels** Lesley Chown and Lesley Cornish	**Theatre**
09:50 – 10:10	219	**Forming characteristics of artificial aging Al-Mg-Si(-Cu) sheet alloys** Artur Klos, Daniel Wortberg, Marion Merklein, Philipp Walter and Corrado Bassi	
10:10 – 10:30	347	**Cold roll forming behavior considering spring back of wrought magnesium alloy sheet** Kazuhito Tsuruoka, Aso Hayato and Hisaki Watari	
10:30 – 10:50	142	**Deducing material quality in cast and hot forged steels by new bending test** Henry Valberg and Morten Langøy	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	188	**Microstructural Analysis of Hot Press Formed 22MnB5 Steel** Nuraini Aziz, Syarifah Nur Aqida and Izwan Ismail	**Theatre**

11:40 – 12:00	230	**Numerical investigation of the plastic flow localization based on generalized micromorphic formulation** Evangelia Diamantopoulou, Carl Labergere and Khemais Saanouni	**Theatre**
12:00 – 12:20	237	**The Influence of Deformation-Induced Microvoids on Mechanical Failure of AISI A8 Martensitic Tool Steel** Hadi Ghasemi Nanesa, Mohammad Jahazi, Majid Heidari and Tom Levasseur	
12:20– 12:40	262	**Variation of strain rate sensitivity index of a superplastic aluminum alloy in different testing methods** Omid Majidi, Mohammad Jahazi, Nicolas Bombardier and Ehab Samuel	
12:40 – 13:00	270	**Effect of Anisotropic Yield Function Evolution on Formability of Sheet Metal** H.J. Choi, Yumi Choi, K.J. Lee, J.Y. Lee, Kaushik Bandyopadhyay and M.-G. Lee	
13:00 - 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	274	**Fracture Prediction of Hole Expansion Forming Using Forming Limit Stress Criterion** Tomoyuki Hakoyama, Hayato Nakano and Toshihiko Kuwabara	**Theatre**
15-20 – 15:40	294	**Linear Transformation Based Orthotropic Shear Ductile Fracture Criterion For Lightweight Metals** Yanshan Lou and Jeong Whan Yoon	**Theatre**
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	301	**Forming Limit Strains for Non-Linear Strain Path of AA6014 Aluminium Sheet Deformed at Room Temperature** José Divo Bressan, Mathias Liewald and Klaus Drotleff	**Theatre**
16:30 – 16:50	331	**Correlation between Von Mises Strain and Material Thinning in a Hydroformed Sample of Ti35A Aerospace Grade Titanium** Colin Bell, Ellen Jump, William Kerr, Jonathan Corney, Nicola Zuelli and David Savings	
16:50 – 17:10	46	**Limits in multi-point forming based on a small scaled flexible 9-point die device** Petra Maier, Christian Ruback, Harry Schellhorn and Paul Rümmler	

MS2 Composites forming processes			
Wednesday, 26th April			
Time	**MS2**	**Mini-Symposia**	**Location**
09:20 – 09:40	7	**Periodic boundary conditions for mesoscale finite elements simulation of 3D woven fabrics** Ismael Azehaf, Nahiene Hamila, Philippe Boisse, Laurent Orgeas and Sabine Rolland Du Roscoat	**Gallery**
09:40 – 10:00	19	**Draping simulation with a new finite element formulation involving an internal unit cell** Benjamin Kaiser, Thomas Pyttel, Eberhard Haug and Fabian Duddeck	
10:00 – 10:20	24	**Modeling and Validation of Gripper Induced Membrane Forces in Finite Element Forming Simulation of Continuously Reinforced Composites** Christian Poppe, Dominik Dörr, Tobias Joppich, Luise Kärger and Frank Henning	
10:20– 10:40	26	**On The Relevance of Modeling Viscoelastic Bending Behavior in Finite Element Forming Simulation of Continuously Fiber Reinforced Thermoplastics** Dominik Dörr, Fabian J. Schirmaier, Frank Henning and Luise Kärger	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	27	**Simulating Squeeze Flows in Multiaxial Laminates** Ruben Ibanez, Emmanuelle Abisset-Chavanne and Francisco Chinesta	**Gallery**
11:30 – 11:50	29	**Modeling of the Non-Isothermal Crystallization Kinetics of Polyamide 6 Composites During Thermoforming** Daniel Kugele, Döminik Dörr, Florian Wittemann, Benjamin Hangs, Julius Rausch, Luise Kaerger and Frank Henning	
11:50 – 12:10	53	**Influence of the temperature on the composites' fusion bonding quality** Ali Harkous, Tomasz Jurkowski, Jean-Luc Bailleul and Steven Le Corre	
12:10 – 12:30	60	**Compaction behavior of Out-of-Autoclave prepreg materials** Léonard Serrano, Philippe Olivier and Jacques Cinquin	
12:30– 12:50	72	**Thermoforming of glass fiber reinforced polypropylene: a study on the influence of different process parameters** Alexander Schug, Jonas Winkelbauer, Roland Hinterhölzl and Klaus Drechsler	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	77	**Numerical approach for modeling across scales infusion-based processing of aircraft primary structures** Koloina Andriamananjara, Loic Chevalier, Nicolas Moulin, Julien Bruchon, Pierre-Jacques Liotier and Sylvain Drapier	**Gallery**
15-20 – 15:40	88	**Quantification of micro-CT images of textile reinforcements** Ilya Straumit, Stepan Lomov and Martine Wevers	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	100	**Out-of-Autoclave Manufacturing of a Stiffened Thermoplastic Carbon Fibre PEEK Panel** Michael Flanagan, Jamie Goggins, Adrian Doyle, Bryan Weafer, Mark Ward, Matthieu Bizeul, Rory Canavan, Conchúr Ó Brádaigh, Kieth Doyle and Noel Harrison	**Gallery**
16:30 – 16:50	116	**Thermo-mechanical characterization of a thermoplastic composite and prediction of the residual stresses and lamina curvatures during cooling** Mael Péron, Frédéric Frédéric, Pascal Casari, Gilles Orange, Jean Luc Bailleul and Nicolas Boyard	
16:50 – 17:10	120	**A Mesoscopic Approach For Draping Simulation Of Preforms Manufactured By Direct Fibre Placement** Mathias Engelfried, Julian Fial, Manuel Tartler, Patrick Böhler and Peter Middendorf	
17:10 – 17:30	125	**Flow monitoring of Microwave pre-heated resin in LCM processes** Felice Rubino, Valentino Paradiso and Pierpaolo Carlone	
17:30 – 17:50	136	**Simulation of microwave heating of a composite part in an oven cavity** Hermine Tertrais, Anaïs Barasinski, Chady Ghnatios, Francisco Chinesta and Ruben Ibanez	
Thursday, 27th April			
Time	**MS2**	**Mini-Symposia**	**Location**
09:30 – 09:50	159	**Impregnation Quality of Compression Moulded Shredded Semipreg** Guillaume Vincent, Venkateswaran Balakrishnan, Thomas de Bruijn, Mohammed Iqbal Abdul Rasheed and Sebastiaan Wijskamp	**Gallery**
09:50 – 10:10	171	**Strategy for Improving the quality of multi-layered interlock dry fabric preforms** Samir Allaoui	
10:10 – 10:30	172	**A Combination of ATL process with UV curing technology based on inverse approach** Issam Balbzioui, Basma Hasiaoui, Gerald Barbier, Gildas L'Hostis, Bernard Durand, Fabrice Laurent and Ahmad Ibrahim	
10:30 – 10:50	227	**Manufacturing issues which affect coating erosion performance in wind turbine blades** Enrique Cortes, Fernando Sanchez, Luis Domenech, Aurelio Olivares, Trevor M.Young, Anthony O'Carrol and Francisco Chinesta	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	234	**Continuous Welding Of Unidirectional Fiber Reinforced Thermoplastic Tape Material** Ralf Schledjewski	**Gallery**
11:40 – 12:00	239	**Simulation of Composite Reinforcement Deformation based on X-ray Computed Tomography** Naim Naouar, Emmanuelle Vidal-Salle and Philippe Boisse. Meso F.E	
12:00 – 12:20	245	**Hot forming of Composite prepreg : experimental study** Xavier Tardif, Bertrand Duthille, Stephane Bechtel, Louis Le Pinru, Benjamin Campagne, Gautier Destombes, Antoine Deshors, Christophe Marchand, Khalid El Azzouzi and Tanguy Moro	
12:20– 12:40	249	**Analysis of the local fiber volume fraction variation in pultrusion process** Ismet Baran	
12:40 – 13:00	258	**Hot forming of Composite prepreg: Numerical analyses** Eduardo Guzman-Maldonado, Khalid El Azzouzi, Nahiène Hamila, Tanguy Moro, Sylvain Chatel, Paulin Fideu and Philippe Boisse	
12:40 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	280	**Modelling and simulation of the consolidation behavior during thermoplastic prepreg composites forming process** Hu Xiong, Nahiene Hamila and Philippe Boisse	**Gallery**

15-20 – 15:40	303	**Finite Element Simulation of Thickness Changes in Laminate during Thermoforming** Kari White and James Sherwood	**Gallery**
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	308	**Influence of Prepreg Characteristics on Stamp Consolidation** Tjitse K. Slange, Laurent L. Warnet, Wouter J.B. Grouve and Remko Akkerman	**Gallery**
16:30 – 16:50	325	**Modeling of Prepregs during Automated Draping Sequences** Christian Krogh, Jens Glud and Johnny Jakobsen	
16:50 – 17:10	55	**Modeling and Simulating the Forming of New Dry Automated Lay-up Reinforcements for Primary Structures** Laure Bouquerel, Sylvain Drapier, Nicolas Moulin, Philippe Boisse and Jean-Marc Beraud	
17:10 – 17:30	81	**Specificities of the Mechanical Behavior** Philippe Boisse, Nahiene Hamila and Angela Madeo. Simulations of 3D Textile Composite Reinforcements	
17:30 – 17:50	175	**Mechanical analysis of CFRP-steel hybrid composites considering the interfacial adhesion** Jinhyeok Jang, Minchang Sung, Sungjin Han, Wonbo Shim and Woong-Ryeol Yu	
Friday, 28th April			
Time	**MS2**	**Mini-Symposia**	**Location**
09:30 – 09:50	236	**Structural investigation of a new composite process** Philippe Mayer, Eric Becker, Régis Bigot and Bruno Kaici	**Gallery**
09:50 – 10:10	240	**Experimental Investigation on Innovative Manufacturing Method of Glass Fiber Reinforced Polymers** Amin Haghbin, Gholamhossein Liaghat, Mohammad Hossein Pol and Amir Masoud Arabi	
10:10 – 10:30	256	**Friction of Carbon Fibre and Influence of Sizing Treatment** Michel Tourlonias, Catherine Jordan, Marie-Ange Bueno and Dominique Poquillon	
10:30 – 10:50	31	**From Dilute to Entangled Fiber Suspensions Involved in Reinforced Polymers and Composites** Marta Perez-Miguel, Emmanuelle Abisset-Chavanne, Francisco Chinesta and Roland Keunings	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	367	**Finite strain anisotropic elasto-plastic model for the simulation of the forming and testing of metal/short fiber reinforced polymer clinch joints at room temperature** Aamir Dean, Raimund Rolfes, Bernd-Arno Behrens, Anas Bouguecha, Sven Hübner, Christian Bonk and Nenad Grbic	**Gallery**
11:40 – 12:00	384	**The influence of technological parameters on the dynamic behavior of liquid wood samples obtained by injection molding** Simona Plavanescu Mazurchevici, Constantin Carausu, Radu Comaneci and Dumitru Nedelcu	
12:00 – 12:20	385	**Failure Process Investigation of Overwrapping Composite on the Pipe by Burst Test** Yanyv Wang, Zhiqiang Cheng and Thierry Barriere	
12:20– 12:40	386	**Dual-cure photochemical/thermal LED infusion process Toward for Carbon Fiber Composites** Ahmad Ibrahim, Xavier Allonas and Fabrice Laurent	

MS3 Additive Manufacturing			
Wednesday, 26th April			
Time	**MS3**	**Mini-Symposia**	**Location**
09:20 – 09:40	369	**Roles of Microstructures on Deformation Response of 316 Stainless Steel Made by Powder-bed Laser 3D printing** Minh-Son Pham and Paul Hooper	**Space**
09:40 – 10:00	36	**Rheological Characterization of Plasticized Corn Proteins for Fused Deposition Modeling** Laurent Chaunier, Michèle Dalgalarrondo, Guy Della Valle, Denis Lourdin, Didier Marion and Eric Leroy	
10:00 – 10:20	102	**Reducing tool wear by partial cladding of critical zones in hot form tool by laser metal deposition** Robert Vollmer and Christof Sommitsch	
10:20– 10:40	202	**Toward improvement of the properties of parts manufactured by FFF (Fused Filament Fabrication) through understanding the influence of temperature and rheological behaviour on the coalescence phenomenon** Shahriar Bakrani Balani, France Chabert, Valerie Nassiet, Arthur Cantarel and Christian Garnier	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	271	**Development and Fabrication of Patient-Specific Knee Implant Using Additive Manufacturing Techniques** Robert Zammit and Arif Rochman	**Space**
11:30 – 11:50	302	**Robot-Based Additive Manufacturing for Flexible Die Modelling in Incremental Sheet Forming** Michael Rieger, Denis Daniel Störkle, Lars Thyssen and Bernd Kuhlenkötter	
11:50 – 12:10	328	**Numerical simulation of complex part manufactured by Selective Laser Melting process** Laurent Van Belle	
12:10 – 12:30	334	**3D Printing of Polypropylene Using the Fused Filament Fabrication Technique** Alexandre Ferreira Da Silva, Olga S Carneiro and Rui Gomes	
12:30– 12:50	218	**Influence on surface characteristics of Electron Beam Melting process (EBM) by varying the process parameters** Adrien Dolimont, Sébastien Michotte, Edouard Rivière-Lorphèvre, François Ducobu, Solange Vivès, Stéphane Godet, Tom Henkes and Enrico Filippi	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	82	**Improving the Strength of Additively Manufactured Objects via Modified Interior Structure** Can Mert Al and Ulas Yaman	**Space**
15-20 – 15:40	156	**Point, Surface and Volumetric Heat Sources in the Thermal Modelling of Selective Laser Melting** Yabin Yang and Can Ayas	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	200	**On the microstructure analysis of FSW joints of Aluminium components made via Direct Metal Laser Sintering** Fabio Scherillo, Antonello Astarita, Daniela di Martino, Vincenzo Contaldi, Luca di Matteo, Paolo di Petta, Renzo Casarin, Antonino Squillace and Antonio Langella	**Space**
16:30 – 16:50	264	**Mechanical behavior of three-dimensional pyramidal aluminum lattice materials** Fusheng Han, Yingjie Huang, Yingying Xue and Xinfu Wang	
16:50 – 17:10	216	**Lattice structures integration with conventional topology optimization** Maurizio Calabrese, Teresa Primo and Antonio Del Prete	
17:10 – 17:30	25	**Additive-Manufactured Sandwich Lattice Structures: A Numerical and Experimental Investigation** Omar Fergani, Sigmund Tronvoll, Vegard Brotan, Torgeir Welo and Knut Sorby	
17:30 – 17:50	155	**Computationally Efficient Thermal Modelling of Selective Laser Melting** Yabin Yang and Can Ayas	
17:50 - 18:00	335	**An Analysis of the Distribution of Temperature, Stress and Strain in Laser Cladding Process** Nusrat Tamanna, Roger Crouch, Manolis Gavaises and Sumsun Naher	
18:00 - 18:10	355	Mitigation of the Overcuring Effect in Mask Projection Micro-Stereolithography via CAD File Manipulation Paul O'Neill, Nigel Kent and Dermot Brabazon	

MS4 Non-conventional processes			
Wednesday, 26th April			
Time	**MS4**	**Mini-Symposia**	**Location**
09:20 – 09:40	50	**Modification of the process dynamics in the micro-EDM by means of an additional piezo-control system** Mathias Herzig, Thomas Berger, Hans-Peter Schulze, Matthias Hackert-Oschätzchen, Oliver Kröning and Andreas Schubert	**Q120**
09:40 – 10:00	85	**Deformation characteristics of thermoplastics in single point incremental forming** Fabian Maass, Soeren Gies and A. Erman Tekkaya	
10:00 – 10:20	91	**Evaluation of Geometrical Parameters Effects on Density Distribution in Compaction of PM Gears** Alireza Khodaee and Arne Melander	
10:20– 10:40	101	**Dissimilar metal joining by Friction Stir Welding between titanium and aluminum** Florent Picot, Antoine Gueydan and Eric Hug	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	141	**Development of Hybrid Directional Reinforced Structural Parts for Lightweight Applications** Werner Homberg, Tim Rostek, Mirko Schaper, Olexandr Grydin, Anatolii Andreiev, Alexander Brosius and Marc Tulke	**Q120**
11:30 – 11:50	193	**Fabrication and Mechanical Characterization of Hybrid Metal Foam/Bio-Composite Samples** Antonio Formisano, Luca Boccarusso, Luigi Carrino, Massimo Durante and Antonio Langella	
11:50 – 12:10	220	**Lightweight Bio-Composites based on Hemp Fibres Produced by Conventional and Unconventional Processes** Luca Boccarusso, Massimo Durante, Formisano Antonio, Langella Antonio and Fabrizio Memola Capece Minutolo	
12:10 – 12:30	313	**Modelling and optimisation of electromagnetically coupled solid manufacturing processes** Francois Bay, Jose Alves and Julien Barlier	
12:30– 12:50	321	**Fabrication of Micro T-shaped Tubular Components by Hydroforming Process** Ken-Ichi Manabe, Kenta Itai and Kazuo Tada	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	140	**Hot Metal Gas Forming of Titanium Grade 2 Bent Tubes** Alexander Paul, Ricardo Trân, Markus Werner and Dirk Landgrebe	**Q120**
15-20 – 15:40	18	**Importance of polarity change in the electrical discharge machining** Hans-Peter Schulze	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	30	**Comparison between rotary and conventional flaring processes** Subha Tamang, Olga Bylya, Michael Ward, Martin Tuffs and Steven Halliday	**Q120**
16:30 – 16:50	59	**Supercritical debinding of Inconel 718 parts realized by metal injection moulding** Alexandre Royer, Thierry Barriere and Jean-Claude Gelin	
16:50 – 17:10	97	**Securing a Robust Electrical Discharge Drilling Process by Means of Flow Rate Control** Ali Akbar Hossein Abdolahi, Matthias Risto, Rüdiger Haas and Markus Munz	
17:10 – 17:30	107	**Creep-age Forming of AA2219 Plate with Isogrid Structure** Youliang Yang and Lihua Zhan	
17:30 – 17:50	143	**Surface roughness at vibroburnishing** Gheorghe Nagit, Laurentiu Slatineanu, Oana Dodun, Margareta Coteata, Irina Besliu and Vasile Merticaru	

Thursday, 27th April			
Time	**MS4**	**Mini-Symposia**	**Location**
09:30 – 09:50	170	**Deposition and micro electrical discharge machining of CVD-diamond layers incorporated with silicon** Ralf Kühn, Markus Prieske, Richard Börner, Thomas Berger, Matthias Hackert-Oschaetzchen, Henning Zeidler and Andreas Schubert	**Q120**
09:50 – 10:10	199	**Modeling and Simulation of the Fluid Flow in Wire Electrochemical Machining with Rotating Tool (Wire-ECM)** Fritz Klocke, Tim Herrig, Markus Zeis and Andreas Klink	
10:10 – 10:30	378	**Lightweight Technologies - Trends, Challenges and Solutions** Mohammad Gharbi	
10:30 – 10:50	83	**The FEM Simulation of Continuous Rotary Extrusion (CRE) of Aluminum Alloy AA3003** Nijenthan Rajendran, Henry Valberg and Wojciech Misiolek	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	144	**Surface Structuring of Boron Doped CVD Diamond by Micro Electrical Discharge Machining** Andreas Schubert, Thomas Berger, André Martin, Matthias Hackert-Oschätzchen, Nico Treffkorn and Ralf Kühn	**Q120**
11:40 – 12:00	16	**Friction Stir Back Extrusion of AA7075 Aluminum Alloy - Microstructural Analysis and Mechanical Properties** Zeren Xu and Fadi Abu-Farha	
12:00 – 12:20	283	**Determination of the forming limits of DP600 steel in electrohydraulic forming** Daniel Green, Christopher Maris, Jia Cheng, Sergey Golovashchenko and Constantin Chiriac	
12:20– 12:40	319	**Influence of residual stresses on the wear resistance of magnesium AZ91-D alloy welded by Friction Stir Welding (FSW)** Afia Kouadri-Henni	

MS5 Structures, properties and processing of polymers and biomass based materials			
Thursday, 27th April			
Time	**MS5**	**Mini-Symposia**	**Location**
15:00– 15:20	52	**Investigation on Thermomechanical Properties of Poly (l-lactic acid) for the Stretch Blow Moulding Process of Bioresorbable Vascular Scaffold** Huidong Wei and Gary Menary	**Q122**
15-20 – 15:40	119	**Simulation of Polymer Crystallization Induced by Temperature using the Phase Field Method: Focus on the Avrami Rate Constant** Yanghao Gong, Fabrice Detrez, Yunmei Luo and Luc Chevalier	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	65	**Self Heating during Stretch Blow Molding: an Experimental Numerical Comparison** Yunmei Luo, Luc Chevalier, Eric Monteiro and Francoise Utheza	**Q122**
16:30 – 16:50	190	**Thermoforming of HDPE** David Mckelvey, Gary Menary, Peter Martin and Shiyong Yan	
16:50 – 17:10	212	**A non-invasive experimental approach to validate radiation heat transfer model for thermoforming of semi-crystalline thermoplastics** Sinan Boztepe, Rémi Gilblas, Olivier de Almeida, Yannick Le Maoult and Fabrice Schmidt	
17:10 – 17:30	282	**Assessing the stretch-blow moulding FE simulation of PET over a large process window** James Nixon, Gary Menary and Shiyong Yan	
17:30 – 17:50	332	**Investigation of compression behavior of PE/EVA foam injection molded parts** Roberto Spina	
Friday, 28th April			
Time	**MS5**	**Mini-Symposia**	**Location**
09:30 – 09:50	333	**Crystallization of isotactic polypropylene in different shear regimes** Roberto Spina, Marcel Spekowius and Christian Hopmann	**Q122**
09:50 – 10:10	379	**POSTER_High Temperature Polymer Yarns for Through Thickness Reinforcement of Carbon Fibre Laminates** Cormac Mcgarrigle, Thomas Dooher, Alistair Mcllhagger, Eileen Harkin-Jones, Dorian Dixon and Edward Archer	
10:10 – 10:30	402	**Processing - Property Relations from Biaxial Deformation of PET (Polyethylene Terephthalate)** Narendran Anumula, Gary Menary, Shiyong Yan, James Nixon and Peter Martin	
10:30 – 10:50	20	**A method of measuring the effective thermal conductivity of thermoplastic foams** André Chateau Akué Asséko, Benoit Cosson, Salim Chaki, Clément Duborper, Marie-France Lacrampe and Patricia Krawczak	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	28	**Static Yield Stress and Stability of ER/MR Fluids** Yongsok Seo, Youngwook Seo and Junsok Choi	**Q122**
11:40 – 12:00	183	**Hybrid RTM process: Monitoring and processing of composites based on reactive thermoplastic systems** Abderrahim Maazouz, Khalid Lamnawar and Mohamed Dkier	
12:00 – 12:20	338	**The influence of cosmic radiation on the properties of different polymers** Andrea Adamne Major and David Boja	

MS6 Integrated design, modeling and reliability assessment in forming (I-DMR)			
Thursday, 27th April			
Time	**MS6**	**Mini-Symposia**	**Location**
15:00– 15:20	76	**Estimating Product-to-product Variations in Metal Forming using Force Measurements** Jos Havinga and Ton van den Boogaard	**QG13**
15-20 – 15:40	224	**Testing Single Point Incremental Forming Molds for Rotomolding Operations** Daniel Afonso, Ricardo Alves De Sousa and Ricardo Torcato	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	126	**Modelling And Simulation Of Cure In Pultrusion Processes** Fausto Tucci, Felice Rubino, Valentino Paradiso, Pierpaolo Carlone and Robertt Valente	**QG13**
16:30 – 16:50	307	**Shape optimization of shear fracture specimen considering plastic anisotropy** Shunying Zhang, Jeong Whan Yoon, Sung-Uk Lee and Yanshan Lou	
16:50 – 17:10	51	**Finite element modeling of the residual stress evolution in forged and direct-aged Alloy 718 turbine disks during manufacturing and its experimental validation** Andreas Drexler, Werner Ecker, Hans-Peter Gänser, Jozef Keckes, Michael Hofmann, Bernd Oberwinkler, Roland Hessert and Andreas Fischersworring-Bunk	

MS7 Incremental and sheet metal forming			
Wednesday, 26th April			
Time	**MS7**	**Mini-Symposia**	**Location**
09:20 – 09:40	98	**Deep drawability of Ti/resin/Ti laminated sheet** Yasunori Harada and Shuji Hattori	**Blue Room**
09:40 – 10:00	103	**Numerical and experimental microscale analysis of the incremental forming process** Joanna Szyndler, Laurent Delannay, Krzysztof Muszka and Lukasz Madej	
10:00 – 10:20	153	**A modular die set-up for incremental sheet forming with subsequent stress-relief annealing under partial constraints** Fawad Maqbool and Markus Bambach	
10:20– 10:40	201	**Stiffness management of sheet metal parts using laser metal deposition** Markus Bambach, Alexander Sviridov and Andreas Weisheit	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	241	**Effects of Die Quench Forming on Springback and Sheet Thinning** Samuel Kim, Kaab Omer, Clifford Butcher and Michael Worswick	**Blue Room**
11:30 – 11:50	263	**Influence of Heat Treatment on Mechanical Property of Steel Hollow Sphere and Its Sheet Construction** Yoshinori Yoshida and Sho Ozawa	
11:50 – 12:10	298	**In-Process Monitoring Of Flow Forming With Acoustics** Andrew Appleby, Alastair Conway and Bill Ion	
12:10 – 12:30	396	**Influence of Inductive Heating on Microstructure and Material Properties in Roll Forming Processes** Anna Guk, Andreas Kunke, Verena Kräusel and Dirk Landgrebe	
12:30– 12:50	108	**Control of Anisotropic Shape Deviation in Single Point Incremental Forming of Paperboard** Philipp Stein, Wilken Franke, Florian Hoppe, Daniel Hesse, Katharina Mill and Peter Groche	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	47	**Cylindrical Extrusions on A5083 Aluminum Alloy Plate Fabricated by Friction Stir Forming** Takahiro Ohashi, Hamed Mofidi Tabatabaei and Tadashi Nishihara	**Blue Room**
15-20 – 15:40	86	**Incremental electrohydraulic forming - A new approach for the Manufacturing of structured multifunctional sheet metal blanks** Djakow Eugen, Springer Robert, Homberg Werner, Mark Piper, Tran Julian, Zibart Alexander and Kenig Eugeny.	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	87	**Rubber Pad Forming - A efficiently approach for the Manufacturing of complex structured sheet metal blanks for food industry** Spoelstra Paul, Djakow Eugen and Homberg Werner	**Blue Room**
16:30 – 16:50	130	**Finite Element Modelling of Chain-die Forming for Ultra-High Strength Steel** Raju Majji, Yang Xiang, Chunhui Yang and Scott Ding	
16:50 – 17:10	132	**Formability Of Spherical And Large Aluminum Sheets** Frieder Zimmermann, Alexander Brosius, Ralf-Eckhard Beyer, Jens Standfuß and Axel Jahn	
17:10 – 17:30	167	**Multi-objective Optimization Applied to Single Point Incremental Forming of Pure Titanium Denture Plate** Manel Sbayti, Riadh Bahloul and Hedi Belhadjsalah	
17:30 – 17:50	243	**Springback of Aluminum Alloy Brazing Sheet in Warm Forming** Kyu Bin Han, Ryan George, Srihari Kurukuri, Michael Worswick and Sooky Winkler	
Thursday, 27th April			
Time	**MS7**	**Mini-Symposia**	**Location**
09:30 – 09:50	248	**Evolution of heat in dry rotary swaging** Marius Herrmann, Yang Liu, Christian Schenck, Bernd Kuhfuss and Inken Ohlsen	**Blue Room**
09:50 – 10:10	318	**Validation of the FEA of a Deep Drawing Process with Additional Force Transmission** B.-A. Behrens, Anas Bouguecha, Christian Bonk, Nenad Grbic and Milan Vucetic	
10:10 – 10:30	364	**An Investigation And Prediction Of Failure Of Sheet Metals Under Cold Forming Condition** Mohamed Mohamed, Mohamed Farouk, Ahmed Elsayed, Mostafa Shazly and Abdel Aziz Hegazy	
10:30 – 10:50	395	**Performance Analysis of the Incremental Sheet Forming on PMMA using a Combined Chemical and Mechanical Approach** Romina Conte, Francesco Gagliardi, Giuseppina Ambrogio, Luigino Filice and Pietro Russo	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	182	**Finite Element Assisted Prediction of Ductile Fracture in Sheet and Tube Hydroforming** Bryan Mac Donald, Rubén Lostado Lorza and Shoichiro Yoshihara	**Blue Room**
11:40 – 12:00	184	**Plastic deformation history in infeed rotary swaging process** Yang Liu, Marius Herrmann, Christian Schenck and Bernd Kuhfuss	
12:00 – 12:20	247	**Finite Element Simulation of Non-Isothermal Warm Forming of High-Strengt Aluminum Alloy Sheet** Jacqueline Noder, Michael Worswick, Clifford Butcher and Sante Dicecco	
12:20– 12:40	279	**A Compensation Strategy For Geometric Inaccuracies Of Hot Incrementally Formed Parts** Lars Thyssen, Denis Daniel Störkle and Bernd Kuhlenkötter	
12:40 – 13:00	310	**Architectural Setup For Online Monitoring And Control Of Process Parameters In Robot-Based ISF** Denis Daniel Störkle, Lars Thyssen and Bernd Kuhlenkötter	

12:40 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	38	**Numerical simulation of the deep drawing process for tailored heat treated al-mg-si alloys** Michael Machhammer and Christof Sommitsch	**Blue Room**
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	165	**Development of a numerical methodology for flowforming process simulation of complex geometry tubes** Sonia Varela, Maite Santos, Amaia Arroyo, Iñaki Pérez, Joan Francesc Puigjaner and Blanca Puigjaner	**Blue Room**
16:30 – 16:50	296	**A Study on Thick Plate Forming for Hollow-Partitioned Steam Turbine Nozzle** Bong-Seok Kwak, Byeong-Kwon Kang, Beom-Soo Kang, Tae-Wan Ku, Mahn-Jung Yoon and Jae-Young Jeon	

MS8 Machining and cutting			
Thursday, 27th April			
Time	**MS8**	**Mini-Symposia**	**Location**
16:10 – 16:30	42	**New Tool Holder Design for Cryogenic Machining of Ti6Al4V** Marco Bellin, Andrea Ghiotti, Stefania Bruschi and Stefano Sartori	**Q120**
16:30 – 16:50	157	**Influences of High-Pressure Coolant Supply on Chip Formation in Milling** Fritz Klocke, Benjamin Döbbeler and Thomas Lakner	
16:50 – 17:10	221	**Microstructural and Hardness Changes in Aluminum Alloy Al-7075: Correlating Machining and Equal Channel Angular Pressing** Stano Imbrogno, Eric Segebade, Andreas Fellmeth, Michael Gerstenmeyer, Frederik Zanger, Volker Schulze and Domenico Umbrello	
17:10 – 17:30	231	**Microstructural Investigations of the Trimmed Edge of DP980 Steel Sheets** Sandeep Bhattacharya, Daniel Green, Raj Sohmshetty and Ahmet Alpas	
17:30 – 17:50	265	**Reducing the Uncertainty in Robotic Machining by Modal Analysis** Iñigo Alberdi, Jose Angel Pelegay, Pedro-Jose Arrazola and Klaus Bonde	

Friday, 28th April			
Time	**MS8**	**Mini-Symposia**	**Location**
09:30 – 09:50	291	**Tool Geometry Optimization for Drilling CFRP/Al-Li Stacks with a Lightning Strike Protection** Souhail El Bouami, Malek Habak, Raphaël Velasco, Baptiste Dos Santos, Gérald Franz and Pascal Vantomme	**Q120**
09:50 – 10:10	295	**Cutting Force Simulation in Milling with Multi-edges Cutter** Takashi Matsumura and Shoichi Tamura	
10:10 – 10:30	194	**A Methodology for 2D Cutting Process Simulation of Solid End Mill** Kateryna Skrypka and Gaetano Massimo Pittalà	
10:30 – 10:50	342	**Influence of the ferritic-pearlitic steel microstructure on surface roughness in broaching of automotive steels** Inaki Arrieta, Cédric Courbon, Frédéric Cabanettes, Pédro-José Arrazola and Joël Rech	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	267	**Experimental Analysis of Influence of Cutting Conditions on Machinability of Waspaloy** Serafino Caruso, Sergio Rinaldi, Rodolfo Franchi, Antonio Del Prete and Domenico Umbrello	**Q120**
11:40 – 12:00	68	**Numerical Simulation Of Machining Distortions On A Forged Component Obtained By Ring Rolling Process** Rodolfo Franchi, Antonio Del Prete, Maurizio Calabrese and Iolanda Donatiello	
12:00 – 12:20	189	**Finite Element Model Of White And Dark Layers Induced In Hard Orthogonal Cutting Of AISI52100** Samar Arfaoui, Farhat Zemzemi and Zoubeir Tourki	
12:20– 12:40	287	**Modeling of Surface Roughness in Diamond Turning of PMMA used for Contact Lens Making** Fundiswa Kopi and Khaled Abou El Hossein	

MS9 Optimization and inverse analysis in forming			
Thursday, 27th April			
Time	**MS9**	**Mini-Symposia**	**Location**
15:00– 15:20	62	**Fusion metamodeling of the bend deduction in air bending** Matteo Strano, Lorenzo Iorio, Quirico Semeraro and Roberto Sofia	**Q121**
15-20 – 15:40	115	**Efficient Calculation of Uncertainty Propagation with an Application in Robust Optimization of Forming Processes** Omid Nejadseyfi, Hubert Geijselaers and Ton van den Boogaard	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	261	**Parameters identification of the Chaboche model for non linear deformation conditions** Grzegorz Smyk, Paulina Graca, Krzysztof Muszka and Danuta Szeliga	**Q121**
16:30 – 16:50	192	**Remarks on variational sensitivity analysis of elastoplastic deformations** Franz-Joseph Barthold and Jan Liedmann	
16:50 – 17:10	174	**Framework for Simulation-Driven Design of Stamping Dies Considering Elastic Die and Press Deformations** Johan Pilthammar, Johan Wall and Mats Sigvant	
17:10 – 17:30	203	**Surrogate models for sheet metal stamping problem based on the combination of Proper Orthogonal Decomposition and Radial Basis Function** Van Tuan Dang, Pascal Lafon and Carl Labergere	
17:30 – 17:50	39	**How inverse solver technologies can support die face development and process planning in the automotive industry** Stefan Huhn, Derek Peeling and Maximilian Burkart	

Friday, 28th April			
Time	**MS9**	**Mini-Symposia**	**Location**
09:30 – 09:50	162	**Ring Rolling Process Simulation For Microstructure Optimization** Rodolfo Franchi, Antonio Del Prete, Iolanda Donatiello and Maurizio Calabrese	**Q121**
09:50 – 10:10	35	**Predicting shrinkage and warpage in injection molding: Towards automatized mold design** Florian Zwicke, Marek Behr and Stefanie Elgeti	
10:10 – 10:30	260	**The maximum work principle regarded as a consequence of an optimisation problem based on mechanical virtual power principle and application of constructal theory** Adinel Gavrus	

MS10 Innovative joining by forming technologies			
Wednesday, 26th April			
Time	**MS10**	**Mini-Symposia**	**Location**
09:20 – 09:40	5	**Manufacturing of hybrid aluminium copper jointsby electromagnetic pulse welding - an analysis of important process parameters** Verena Psyk, Christian Scheffler, Maik Linnemann and Dirk Landgrebe	**QG13**
09:40 – 10:00	69	**Manufacture of Thin-Walled Clad Tubes by Pressure Welding of Roll Bonded Sheets** Hans Christian Schmidt, Olexandr Grydin, Mykhailo Stolbchenko, Werner Homberg and Mirko Schaper	
10:00 – 10:20	94	**Comparison between FSW and bonded lap joints - a preliminary investigation** Enrico Lertora, Davide Campanella, Chiara Mandolfino, Carla Gambaro, Livan Fratini and Buffa Gianluca	
10:20– 10:40	135	**Reproducing the experimental torque-to-turn resistance of blind rivet nuts using FEA** Arne Van de Velde, Sam Coppieters, Kristof Denys, Jan Maeyens and Dimitri Debruyne	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	146	**Analysis and Simulation of the Energy Dissipation at Mechanical Joints** Alexander Brosius, Christina Guilleaume and Alexander Wolf	**QG13**
11:30 – 11:50	158	**Numerical Simulation of Linear Friction Welding of Aeronautical alloys** Antoine Potet, Katia Mocellin and Lionel Fourment	
11:50 – 12:10	160	**In-Process Tool Rotation Variation with Constant Heat Input in Friction Stir Welding of AZ31 Sheet with Variable Thickness** Gianluca Buffa, Davide Campanella, Archimede Forcellese, Livan Fratini and Michela Simoncini	
12:10 – 12:30	161	**Mechanical joining of Materials with Limited Ductility: Analysis of Process-Induced Defects** Mathias Jäckel, Sam Coppieters, Martin Hofmann and Nelis Vandermeiren	
12:30– 12:50	181	**Process Optimization of Joining by Upset Bulging with Local Heating** Michael Rusch, Amer Almohallami, Alexander Sviridov, Christian Bonk, Bernd-Arno Behrens and Markus Bambach	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	329	**Finite Element Model and Experiment on Electro-Magnetic Wire Crimping Process** Ashish Kumar Rajak and Sachin Kore	**QG13**
15-20 – 15:40	390	**Numerical Simulation of High-Speed Nailing Process** Fabien Goldspiegel, Katia Mocellin and Philippe Michel	

MS11 Heat transfer in forming processes			
Thursday, 27th April			
Time	**MS11**	**Mini-Symposia**	**Location**
09:30 – 09:50	64	**Experimental validation of analytical models for a rapid determination of cycle parameters in thermoplastic injection molding** Baptiste Pignon, Vincent Sobotka, Nicolas Boyard and Didier Delaunay	**Space**
09:50 – 10:10	99	**Experiments and Numerical Modeling of Flow Field and Heat Transfer Coefficients inside an Autoclave Model** Taleb Ghamlouch, Stéphane Roux, Jean-Luc Bailleul and Vincent Sobotka	
10:10 – 10:30	109	**Numerical Modeling of Electrical Upsetting Manufacturing Processes Based on FORGE® Environment** Jose Alves, Sergio Acevedo, Stephane Marie, Bernhard Adams, Katia Mocellin and François Bay	
10:30 – 10:50	278	**Simulations of the Heat Exchange in Thermoplastic Injection Molds Manufactured by Additive Techniques** Wafa Daldoul, Thomas Toulorge and Michel Vincent	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	393	**Study of the reflective behaviour of carbon fibres reinforced polymer composite up to 450°C** Violaine Le Louet, Benoit Rousseau and Steven Le Corre	**Space**
11:40 – 12:00	209	**Calculation and Validation of Heat Transfer Coefficient for Warm Forming Operations** Kaab Omer, Clifford Butcher and Michael Worswick	
12:00 – 12:20	344	**Development and Experimental Assessment of a Numerical Modelling Code to Aid the Design of Profile Extrusion Cooling Tools** Olga Carneiro, A. Rajkumar, C. Fernandes, L. Ferras, F. Habla and M. Nobrega	
12:20– 12:40	288	**Thermal Sensors to Control Polymer Forming - Challenge and Solutions** Nadine Allanic, Jean-Luc Bailleul, Franck Lemeunier, Nicolas Boyard, Alain Sarda, Christophe Plot, Nicolas Lefevre, Isabelle Petit and Gael Colomines	
12:40 – 13:00	374	**Design and thermal analysis of a mold used in the injection of elastomers** Nasser Fekiri, Pierre Mousseau, Alain Sarda and Cécile Canto	
12:40 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	289	**A New Tribological System Test for Integrated Hot Forming and Die Quenching of Aluminium Alloy Sheets** Knut Erik Snilsberg, Torgeir Welo, Bjørn Holmedal, Knut Erling Moen, Ola Jensrud and Christian Koroschetz	**Space**

MS12 Semi-solid processes			
Thursday, 27th April			
Time	**MS12**	**Mini-Symposia**	**Location**
09:30 – 09:50	348	**Solidification of aluminum alloys by using twin roll casting process** Takegfumi Ishikawa, Hisaki Watari and Toshio Haga	**Q122**
09:50 – 10:10	362	**Semisolid Forming of S48C Steel Grade** Gorka Plata, Jokin Lozares, Zigor Azpilgain, Iñaki Hurtado, Iñigo Loizaga and Zuriñe Idoyaga	
10:10 – 10:30	366	**Parametric Study for Graphene Reinforced Aluminum Matrix Composites Production Using Box Behnken Design** Bhagya Dasari, Jamshid Nouri, Dermot Brabazon and Sumsun Naher	
10:30 – 10:50	397	**Hot Rolled High Al Containing Steels as a Replacement for the Control Rolled High Strength Low Alloy (HSLA) Steels** Abdullah Qaban, Barrie Mintz and Sumsun Naher	
11:20 - 11:40	17	**Numerical simulation of the induction heating of hybrid semi-finished materials into the semi-solid state** Christoph Seyboldt and Mathias Liewald	**Q122**
11:40 - 12:00	197	**Micro-Bulges Investigation on Laser Modified Tool Steel for Surface Wettability** Syarifah Aqida and Izwan Ismail	
12:00 - 12:20	242	**Experimental Investigation Of Thixoforging Tubes** Eric Becker, Régis Bigot, Olivier Gyss, Florian Baratto and Jean-Baptiste Croue	
12:20 - 12:40	327	**3D Thermal Model of Laser Surface Glazing for H13 Tool Steel** Israt Rumana Kabir, Danqing Yin and Sumsun Naher	
12:40 - 13:00	339	**Solutions of Modified Equation of Motion for Laminar Viscous Flow Across (within) Rigid (liquid) Sphere and Cylinder and Stokes Paradox** Siavash Sohrab	

MS13 Extrusion and drawing			
Thursday, 27th April			
Time	**MS13**	**Mini-Symposia**	**Location**
15:00– 15:20	293	**Solid state recycling of aluminium alloys via a porthole die hot extrusion process: Scaling up to production** Dimos Paraskevas, Karel Kellens, Yelin Deng, Wim Dewulf, Carlos Kampen and Joost Duflou	**Studio**
15-20 – 15:40	147	**Hybrid Deep Drawing Tool for Lubricant Free Deep Drawing** Christina Guilleaume, Ali Mousavi and Alexander Brosius	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	96	**Tribological Investigations of the Applicability of Surface Functionalization for Dry Extrusion Processes** Marco Teller, Stephan Prünte, Ingo Ross, André Temmler, Jochen M. Schneider and Gerhard Hirt	**Studio**
16:30 – 16:50	138	**Co-Extrusion of Semi-Finished Aluminum-Steel Compounds** Susanne Thürer, Uhe Johanna, Golovko Oleksandr, Christian Bonk, Anas Bouguecha, Christian Klose, Bernd-Arno Behrens and Hans Jürgen Maier	
16:50 – 17:10	150	**Appearance of shear zones in nonlubricated axisymmetric direct and indirect extrusion** Henry Valberg and André Luiz M. Costa	
17:10 – 17:30	152	**Optimization of Porthole Die Geometrical Variables by Taguchi Method** Francesco Gagliardi, Claudio Ciancio, Giuseppina Ambrogio and Luigino Filice	
17:30 – 17:50	226	**Comparison of Updated Lagrangian FEM with Arbitrary Lagrangian Eulerian method for 3D thermo-mechanical extrusion of a tube profile** Johannes Kronsteiner, Dieter Horwatitsch and Klaus Zeman	

Friday, 28th April			
Time	**MS13**	**Mini-Symposia**	**Location**
09:30 – 09:50	290	**Numerical study of combined process of backward cup extrusion and piercing** Robinson Henry and Mathias Liewald	**Studio**
09:50 – 10:10	349	**Dry metal forming of low alloy steels by full forward extrusion using innovative surface textures and HPPMS coatings** Rafael Hild, Andreas Feuerhack, Daniel Trauth, Mostafa Arghavani, Nathan C. Kruppe, Tobias Brögelmann, Kirsten Bobzin and Fritz Klocke	
10:10 – 10:30	350	**Coupled modelling of aluminium profiles extrusion and product quality improvement by means of simulation** Nikolay Biba, Ruslan Rezvykh and Ivan Kniazkin	
10:30 – 10:50	392	**Investigation of Cold Extrusion Process Using Coupled Thermo-Mechanical Finite Element Analysis and Adaptive Friction Modeling** Mehmet Okan Görtan	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	398	**Influence of Temperature and Sliding Speed on the Subsurface Microstructure Evolution of EN AW-6060 under Sticking Friction Conditions** Vidal Sanabria and Soeren Mueller	**Studio**

MS14 Mathematical and computer science methods for biomass and food materials processing			
Friday, 28th April			
Time	**MS14**	**Mini-Symposia**	**Location**
09:30 – 09:50	250	**A general computation model based on inverse analysis principle used for rheological analysis of w/o rapeseed and soybean oil emulsions** Iuliana Vintila and Adinel Gavrus	**Blue Room**
09:50 – 10:10	322	**Formation and Morphology of Ice Crystals in Concentrated Food Systems: A Model-based Study** Estefania Lopez Quiroga, Rui Wang, Ourania Gouseti, Peter J. Fryer and Serafim Bakalis	
10:10 – 10:30	354	**Chewing as a forming application: A viscoplastic damage law in modelling food oral breakdown** Christos Skamniotis, Maria Charalambides and Elliott Matthew	
10:30 – 10:50	356	**A Comparison of the Mechanical and Sensory Properties of Baked and Extruded Confectionery Products** Saba Butt, Maria Charalambides and Hugh Powell	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	357	**Model Based Development of Fruit Simulators** Huijian Huang, Mark Tunnicliffe, Young-Min Shim and John Bronlund	**Blue Room**
11:40 – 12:00	358	**Microstructure based hygromechanical modelling of deformation of fruit tissue** Pieter Verboven, Metadel Abera, Zi Wang and Bart Nicolai	
12:00 – 12:20	359	**A Novel Methodology To Model The Cooling Processes Of Packed Horticultural Produce Using 3D Shape Models** Willem Gruyters, Pieter Verboven, Seppe Rogge, Simon Vanmaercke, Herman Ramon and Bart Nicolai	
12:20– 12:40	373	**Multivariate Constrained Shape Optimization: application to Extrusion Bell Shape for Pasta Production** Fabrizio Sarghini, Angela De Vivo and Francesco Marra	

MS15 Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches			
Wednesday, 26th April			
Time	**MS15**	**Mini-Symposia**	**Location**
09:20 – 09:40	95	**Modeling of Yield Surface Evolution in Uniaxial and Biaxial Loading Conditions using a Prestrained Large Scale Specimen** Shakil Zaman, Frédéric Barlat and Jin Kim	**Studio**
09:40 – 10:00	284	**Quasi-Continuum analysis of Dislocation-Coherent Twin Boundary interactions to provide local rules to Discrete Dislocation Dynamics** Tran Hoang Son, Tumala Hareesh, Duchene Laurent, Pardoen Thomas, Fivel Marc and Habraken Anne-Marie	
10:00 – 10:20	34	**Verification of Yield Functions by Biaxial Tensile Tests with Rotated Principal Axes** Ryo Ageba, Akinobu Ishiwatari and Jiro Hiramoto	
10:20– 10:40	314	**Numerical modeling of ductile fracture at the microscale combined with X-Ray laminography and digital volume correlation** Pierre-Olivier Bouchard, Victor Trejo Navas, Modesar Shakoor, Marc Bernacki, Thilo Morgeneyer, Ante Buljac and François Hild	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	21	**Analysis of the Lankford coefficient evolution at different strain rates for AA6016-T4, DP800 and DC06** Matthias Lenzen and Marion Merklein	**Studio**
11:30 – 11:50	78	**Influence of Transient Strain Rates on Material Flow Stress and Microstructure Evolution** Jens Dierdorf, Johannes Lohmar and Gerhard Hirt	
11:50 – 12:10	80	**Experimental and computational approach to evaluate the effect of levelling on the change of tensile properties of heavy steel plates** Thomas Kaltenbrunner, Werner Ecker, Thomas Antretter, Robert Kaiser, Erik Parteder and Rupert Egger	
12:10 – 12:30	106	**Comparative Study of Modelling Efficiency Regarding Localization Development** Laurent Tabourot, Ndeye Awa Sene, Pascale Balland, Nesrine Ksiksi, Ludovic Charleux and Moustapha Issack	
12:30– 12:50	133	**Implementation and Application of a Gradient Enhanced Crystal Plasticity Model** Celal Soyarslan and Semih Perdahcioglu	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	145	**Atypical Transitions In Material Response During Constant Strain Rate, Hot Deformation Of Austenitic Steel** Utpal Borah, B Aashranth, Dipti Samantaray, Santosh Kumar, M. Arvinth Davinci, Shaju K. Albert and A.K. Bhaduri	**Studio**
15-20 – 15:40	164	**Uniaxial Cyclic Stress-Strain Behaviour of Ti-6Al-4V Additively Manufactured by Selective Laser Melting** Kyriakos Kourousis, Dylan Agius, Chris Wallbrink, Milan Brandt and Chun Wang	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	238	**Influence of grain size on the mechanical properties of nano-crystalline copper; Insights from molecular dynamics simulation** Ali Rida, Ali Makke, Emmanuelle Rouhaud and Matthieu Micoulaut	**Studio**
16:30 – 16:50	252	**Intrinsic and Statistical Size Effects in Microforming** Tuncay Yalcinkaya, Aytekin Demirci, Igor Simonovski and Izzet Ozdemir	
16:50 – 17:10	323	**Experimental Validation of the Multiphase Extended Leblond's Model** Daniel Weisz-Patrault	
17:10 – 17:30	336	**Study of the local and global deformation process of an aluminium alloy using full-field measurements** Marco Rossi, Gianluca Chiappini, Luca Maria Mattucci and Dario Amodio	
17:30 – 17:50	337	**Hot-deformation Behaviour of α+β Ti-Al-V-Fe Experimental Alloys** Dawid Prozesky, Michael Bodunrin and Lesley Chown	
Thursday, 27th April			
Time	**MS15**	**Mini-Symposia**	**Location**
09:30 – 09:50	371	**A unified dislocation density-dependent physical-based constitutive model for cold metal forming** Konstantin Schacht, Seyedamirhossein Motaman, Ulrich Prahl and Wolfgang Bleck	**Studio**
09:50 – 10:10	79	**A Numerical Multi-Scale Model to Predict Macroscopic Material Anisotropy of Multi-Phase Steels from Crystal Plasticity Material Definitions** Sathish Kumar Ravi, Jerzy Gawad, Marc Seefeldt, Albert Van Bael and Dirk Roose	
10:10 – 10:30	166	**Thermomechanical simulation of the production process of a creep resistant martensitic steel** Bernadette Gsellmann, Dilek Halici, Bernhard Krenmayr, Cecilia Poletti and Bernhard Sonderegger	
10:30 – 10:50	206	**Cost efficency of the non-associative flow rule simulation of an industrial component** Lander Galdos, Eneko Saenz de Argandoña and Joseba Mendiguren	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	58	**Comparison of creep deformation rates during load and strain controlled multi-step creep ageing tests on AA7050** Jinghua Zheng, Catrin Davies and Jianguo Lin	**Studio**
11:40 – 12:00	228	**Quantum Mechanics and Relativistic Model by the Evaluation of the Activation Energy for Plastic Flow at High Temperature in Titanium Carbide Single Crystals** Juan Daniel Muñoz-Andrade	
12:00 – 12:20	273	**Simulation of thin Aluminium-foil in the Packaging Industry** Eskil Andreasson, Ann-Magret Asp and Tommy Lindström	
12:20– 12:40	381	**Constitutive Equation on basis of Electo-Thermal Uniaxial Tension for Titanium Profile** Baosheng Liu, Fenggong Lv, Yuansong Zeng, Wei Wu, Yongjun Wang and Fengchao Cao	
12:40 – 13:00	399	**Crystal Plasticity Simulation of Zirconium Tube Rolling Using Multi-Grain Representative Volume Element** Margarita Isaenkova, Yuriy Perlovich, Dmitry Zhuk and Olga Krymskaya	

MS16 New and advanced numerical strategies for material forming			
Friday, 28th April			
Time	**MS16**	**Mini-Symposia**	**Location**
09:30 – 09:50	13	**The Analysis of Bottom Forming Process for Hybrid Heating Device** Paweł Bałon, Andrzej Świątoniowski and Bartłomiej Kiełbasa	**Theatre**
09:50 – 10:10	40	**A Simplified Simulation Model for a HPDC Die with Conformal Cooling Channels** Markus Frings, Marek Behr and Stefanie Elgeti	
10:10 – 10:30	44	**A Manifold Learning Approach to Data-Driven Computational Materials and Processes** Ruben Ibañez, Emmanuelle Abisset-Chavanne, Jose Vicente Aguado, David Gonzalez, Elias Cueto and Francisco Chinesta	
10:30 – 10:50	93	**A New Methodology to Characterize the Constitutive Behaviour of PET for the Stretch Blow Moulding Process** Shiyong Yan, Gary Menary and James Nixon	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	123	**A Coupled Thermo-Mechanical Pseudo Inverse Approach For Preform Design In Forging** Anoop Ebey Thomas, Boussad Abbès, Yu Ming Li, Fazilay Abbès, Ying-Qiao Guo and Jean-Louis Duval	**Theatre**
11:40 – 12:00	134	**Model for texture evolution in cold rolling of 2.4 wt. % Si non-oriented electrical steel** Xuefei Wei, Stephan Hojda, Jens Dierdorf, Johannes Lohmar and Gerhard Hirt	
12:00 – 12:20	324	**On the Use of PGD for Optimal Control Applied to Automated Fibre Placement** Nicolas Bur and Pierre Joyot	
12:20– 12:40	370	**Local Proper Generalized Decomposition** Alberto Badías Herbera, David González Ibáñez, Icíar Alfaro Ruiz, Francisco Chinesta Soria and Elías Cueto Prendes	

MS17 Laser material forming			
Thursday, 27th April			
Time	**MS17**	**Mini-Symposia**	**Location**
09:30 – 09:50	89	**Laser welding of polypropylene using two different sources** Chiara Mandolfino, Dermot Brabazon, Éanna McCarthy, Enrico Lertora, Carla Gambaro and Inam Ul Ahad	**QG13**
09:50 – 10:10	251	**Numerical Modelling of Laser Assisted Tape Winding Process** Amin Zaami, Ismet Baran and Remko Akkerman	
10:10 – 10:30	281	**Nd:YOV4 Laser polishing on WC-Co HVOF spray coating** Luca Giorleo, Elisabetta Ceretti, Giovina Marina La Vecchia and Lorenzo Montesano	
10:30 – 10:50	286	**Laser Surface Texturing for High Control of Interference Fit Joint Load Bearing** Muhannad Ahmed Obeidi, Eanna Mccarthy and Dermot Brabazon	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	214	**Preliminary characterization of AA6061 and Ti6Al4V Dissimilar Laser Butt Weld** Giuseppe Casalino, Sonia D'ostuni, Pasquale Guglielmi, Paola Leo, Michelangelo Mortello, Gianfranco Palumbo and Antonio Piccininni	**QG13**
11:40 – 12:00	309	**Laser beam machining of policrystalline diamond for cutting tool manufacturing** Dominik Wyszynski, Marek Zwolak, Robert Ostrowski and Witold Bryk	
12:00 – 12:20	312	**Design of instrumentation and software for precise laser machining** Dominik Wyszyński, Marcin Grabowski and Piotr Lipiec	
12:20– 12:40	48	**Effect of fiber laser marking on surface properties and corrosion resistance of a Fe-Ni-Cr alloy** Antonello Astarita, Chiara Mandolfino, Enrico Lertora, Carla Gambaro, Antonino Squillace and Fabio Scherillo	

MS18 Forging and Rolling			
Wednesday, 26th April			
Time	**MS18**	**Mini-Symposia**	**Location**
09:20 – 09:40	33	**Material saving by means of CWR technology using optimization techniques** Iñaki Pérez	**Q121**
09:40 – 10:00	41	**A new high and moderate speed servo-hydraulic forging simulator machine: capabilities and process optimization** Michail Ntovas and Paul Blackwell	
10:00 – 10:20	66	**Assessment of Flat Rolling Theories for the Use in a Model-Based Controller for High-Precision Rolling Applications** Sven Stockert, Matthias Wehr, Johannes Lohmar, Gerhard Hirt and Dirk Abel	
10:20– 10:40	70	**Simulation of the Hot Rolling of Steel with Direct Iteration** Umut Hanoglu and Božidar Šarler	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	92	**Interlocking multi-material components made of structured steel sheets and high-pressure die cast aluminium** Stefan Senge, Johannes Brachmann, Gerhard Hirt and Andreas Bührig-Polaczek	**Q121**
11:30 – 11:50	118	**Online-Analysis of Process-Data to Avoid Ovality in Radial-Axial Ring Rolling Processes** Tobias Husmann, Simon Husmann and Bernd Kuhlenkötter	
11:50 – 12:10	169	**Comparison of Distortions of Complex Aluminium Sections Formed in Single-Step and Incremental Roll Bending** Jan Magnus G. Farstad, Øyvind Netland and Torgeir Welo	
12:10 – 12:30	173	**Numerical Die Life Estimation of a Crack Susceptible Industrial Hot Forging Process** Mohammad Kazhai, Anas Bouguecha, Christian Bonk, Daniel Rosenbusch and Bernd Arno Behrens	
12:30– 12:50	178	**Modelling of Influence of Carbon Content on Material Behavior during Forging** Marcel Graf, Hendrik Wester, Anas Bouguecha, Grzegorz Korpala, Madlen Ullmann, Birgit Awiszus, Bernd-Arno Behrens and Rudolf Kawalla	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00– 15:20	186	**Investigations on the Flow Behavior of Aluminum in Two Layer Roll Bonding** Alina Melzner and Gerhard Hirt	**Q121**
15-20 – 15:40	191	**Importance of Material and Friction Characterization for FE-aided Process Design of Hybrid Bevel Gears** Bernd-Arno Behrens, Anas Bouguecha, Christian Bonk and Tim Matthias	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	208	**An Approach to Develop an Algorithm to Detect the Climbing Height of Radial-Axial Rolled Rings** Simon Husmann, Magnus Hohmann and Bernd Kuhlenkötter	**Q121**
16:30 – 16:50	244	**3D Finite Element Model for Roll Stack Deformation Coupled with a Multi-Slab Model for Strip Deformation for Flat Rolling Simulation** Yukio Shigaki, Pierre Montmitonnet and Jonatas Mezencio Silva	
16:50 – 17:10	268	**Properties of Hot-Rolled Sheets from Ferritic Steel with Increased Strength** Yuriy Perlovich, Margarita Isaenkova, Petr Dobrokhotov, Sergey Stolbov, Igor Bannykh, Marina Antsyferova and Oleg A. Bannykh	
17:10 – 17:30	272	**Behavior of Sheets from Ti Alloys by Rolling and Heat Treatment** Margarita Isaenkova, Yuriy Perlovich, Vladimir Fesenko, Maria Gritskevich, Sergey Stolbov and Maria Zaripova	
17:30 – 17:50	305	**Predicting Void Closure during Free from Mannesmann Forging Process of Large Size Ingots** Davood Shahriari, Nathan Harris, Kanwal Chadha and Mohammad Jahazi	

Thursday, 27th April			
Time	**MS18**	**Mini-Symposia**	**Location**
09:30 – 09:50	315	**Hot Rolling Simulation for Non-Oriented Electrical Steel** Anett Stöcker, Matthias Schmidtchen and Rudolf Kawalla	**Q121**
09:50 – 10:10	361	**An Advanced Dissymmetric Rolling Model For Online Regulation** Trong Son Cao	
10:10 – 10:30	163	**Ring Rolling Process Simulation For Geometry Optimization** Rodolfo Franchi, Antonio Del Prete, Iolanda Donatiello and Maurizio Calabrese	
10:30 – 10:50	179	**Process Routes for Die Forging of Hybrid Bevel Gears and Bearing Bushings** Bernd-Arno Behrens, Anas Bouguecha, Conrad Frischkorn, Adis Huskic and Anna Chugreeva	
10:50 – 11:20		**Tea & Coffee Break**	**Foyer**
11:20 – 11:40	57	**Statically Determined Slip-Line Field Solution for the Axial Forming Force Estimation in the Radial-Axial Ring Rolling Process** Luca Quagliato and Guido Berti	**Q121**
11:40 – 12:00	117	**Impact of tool wear on Cross wedge rolling process stability and on product quality** Catalina Gutierrez, Laurent Langlois, Cyrille Baudouin, Régis Bigot and Éric Frémeaux	
12:00 – 12:20	346	**Hot Forging of roll cast high high aluminum content magnesium alloys** Tomohiro Kishi, Hisaki Watari, Mayumi Suzuki and Toshio Haga	
12:20– 12:40	56	**Friction-aided strip rolling with variable reductions** Ahmed Elkholy	

MS19 Nanostructured materials fabrication and forming			
Wednesday, 26th April			
Time	**MS19**	**Mini-Symposia**	**Location**
09:20 – 09:40	43	**Wear of Carbon Nanotubes Grafted on Carbon Fibres and this Influence on the Properties of Composites Materials** Claire Guignier, Marie-Ange Bueno, Brigitte Camillieri and Bernard Durand	**Q122**
09:40 – 10:00	104	**Nanostructuration of metals via Spark Plasma Sintering using activated powder obtained by ball-milling: Impact on the strain-hardening mechanisms** Lucia Garcia de La Cruz, Baptiste Flipon, Clément Keller, Mayerling Martinez and Eric Hug	
10:00 – 10:20	110	**Equal Channel Angular Pressing (ECAP) and Forging of Commercially Pure Titanium (CP-Ti)** Maciej Krystian, Daniel Huber and Jelena Horky	
10:20– 10:40	368	**Surface Roughness Control by Extreme Ultraviolet (EUV) Radiation** Inam Ul Ahad, Bogusław Budner, Andrzej Bartnik, Henryk Fiedorowicz and Dermot Brabazon	
10:40– 11:10		**Tea & Coffee Break**	**Foyer**
11:10 – 11:30	185	**Thermal Modelling Of Normal Distributed Nanoparticles Through Thickness In An Inorganic Material Matrix** Steven Latré and Frederik Desplentere	**Q122**
11:30 – 11:50	211	**Nanoparticle Fabrication via Pulsed Laser Ablation in Liquid: A Step Towards Production Scale-up** Brian Freeland, Ronan Mccann, Komal Bagga, Greg Foley and Dermot Brabazon	
11:50 – 12:10	217	**Elaboration of austenitic stainless steel with bimodal grain size distribution and investigation of their mechanical behavior** Baptiste Flipon, Lucia Garcia de La Cruz, Eric Hug, Clément Keller and Fabrice Barbe	
12:10 – 12:30	351	**Agro-industrial waste as source for carbon nanotubes (CNTs) production** Pamela Hidalgo, Carla Martinez and Gustavo Ciudad	
12:30– 12:50	176	**Influence of Tools Geometry and Processing Conditions on Behavior of a Difficult-to-Work Al-Mg Alloy During Equal Channel Angular Pressing** Radu Ioachim Comaneci, Dumitru Nedelcu and Leandru Gheorghe Bujoreanu	
12:50 – 14:00		**Lunch**	**Main Restaurant**
15:00 – 15:20	372	**TiO2 Gas sensor to detect the Proanol at Room temperature** Ibrahim Gaidan, Dermot Brabazon, Salim Asbia and Inam Ul Ahad	**Q122**
15-20 – 15:40	401	**Silver/hydroxyapatite hybrid coatings on Ti–6Al–4V surfaces by sol-gel method** Burak Dikici, Serap Gungor Koc, Mehmet Topuz, Mitsuo Niinomi, Hakan Yilmazer and Masaaki Nakai	
15:40 – 16:10		**Tea & Coffee Break**	**Foyer**
16:10 – 16:30	259	**Microstructure and mechanical propertie of Mg-Nano Hydroxy Apatite composite made by PM** Mohsen Saremi and Nasim Kavoi	**Q122**
16:30 – 16:50	403	**The Controlled Formation of Titanium Oxides using Microwave Plasma Treatments** Emmanuel J. Ekoi and Denis P. Dowling	
16:50 - 17:10	410	**Integrating 180° DLS into processes and high-throughput robotics** T. Benen	