

IDDRG 2022 – Conference program

Tuesday 7 June				
08:00	Registration & welcoming coffee			
	Amphitheatre			
09:00	Opening ceremony			
Chair	S Thuillier			
09:40	Plenary: Marion Merklein, Mechanical joining of high-strength multi-material systems			
10:25	Plenary: Lander Galdos, Friction and contact modelling for sheet and tube forming processes			
11:10	Coffee break			
	Amphitheatre	Room 24	Room 25	Room 27
	Shear cutting and blanking & sheared edge formability (mini-symposium)	Warm and hot forming	Material constitutive modelling	Damage and fracture in sheet metal forming
Chair	P Hora	D Green	J W Yoon	E Saenz de Argandona
11:30	V Volk – keynote to introduce the mini-symposium Current challenges and required solutions for modern trends in the field of shear cutting and blanking of sheet material. <i>F Steinlehner, W Volk</i>	Die Concepts and formability for simultaneous forming of sheet metals and FRPs. <i>X F Fang, T Kloska, A Hajdarevic</i>	Identification Protocol of Yoshida-Uemori Hardening Model. <i>X Lemoine, Q Chichery, J M Devin, P Duroux</i>	Numerical analysis of a backward flow forming operation of AA6061-T6 and comparison with experiments. <i>K Mocellin, M A Vidal, F Frascati, P O Bouchard</i>
11:50		Investigation of the formability and the microstructural evolution during hot drawing of multi-layered, ultrafine-grained AA6014 sheets by thermomechanical analyses. <i>B Zettl, M Merklein</i>	Transient Hardening and R-value Behavior in Two-step Tension and Loading Reversal for DP980 Sheet. <i>M Kim, J Ha, J McNally, Y P Korkolis</i>	Comparison of three different ductile damage models for deep drawing simulation of high-strength steels. <i>B A Behrens, D Rosenbusch, H Wester, P Althaus</i>
12:10	Improvement of shear cutting process by stress superposition via cross-elastic partholder. <i>D Briesenick, M Liewald, S Senn</i>	U-channel forming of an 7075-T6 in warm condition. <i>S Royne, H Laurent, A Maillard</i>	New approach for the identification of anisotropy material parameters using hydraulic bulge tests. <i>A Khalfallah, SA Zoueghi, JV Fernandes</i>	Damage and Fracture Prediction of 3rd Generation Advanced High Strength Steels using Hosford-Coulomb Model and Extended Finite Element Method <i>M Jimenez, A D Santos, R Amaral, D Cruz, J M Cesar de Sa</i>
12:30	Determination of temperature dependence in Modified-Mohr-Coulomb failure model for process simulation of shear cutting. <i>B A Behrens, K Brunotte, H Wester, C Kock, D Kildonaviciute</i>	Investigation of the impact of process parameters on the layer formation of AISi coated boron-manganese steel. <i>F He, M Merklein</i>	Numerical analysis of AISI 321 alloy material parameters on rubber pad diaphragm forming. <i>P S Barros, N Otegi, L Galdos, E Saenz de Argandona</i>	3D fracture modeling based on the coupling between damage criteria, phase field and crack propagation. <i>P O Bouchard, H Eldahshan, D Pino Munoz, J Alves, E Perch</i>
12:50	Lunch			
	Amphitheatre			
Chair	M Merklein			
14:00	Plenary: Stefania Bruschi, Sheet metal forming at elevated temperature			
14:45	Plenary: Bart Carleer, The Autoform Pareto Principle effectively defines the Digital Process Model			
	Amphitheatre	Room 24	Room 25	Room 27
	Material constitutive modelling	Shear cutting and blanking & sheared edge formability (mini-symposium)	Warm and hot forming	Damage and fracture in sheet metal forming
Chair	F Barlat	V Volk	C Butcher	P O Bouchard

15:35	Non-Quadratic Pseudo Dual Potentials for Plastic Flow Modeling. <i>S Y Yang, J Sheng, W Tong</i>	Sheared edge formability characterization of cold-rolled advanced high strength steels for automotive applications. <i>A Lara, D Frometa, S Parareda, D Casellas, P Larour, J Hinterdorfer, E Atzema, M Heuse</i>	Superplastic behaviour of AA5083 sheets in the presence of an oscillating load. <i>M S Dastgiri, Z Fuerth, L Kiawi, E Ryzer, D E Green</i>	Experiments on forming behaviour of the aluminium alloy AA6016. <i>R Norz, F R Valencia, S Gerke, M Brunig, W Volk</i>
15:55	Plasticity and fracture of AA7075 at elevated strain rates and temperatures. <i>X Li, C C Roth, K Pandya, N Karathanasopoulos, D Mohr</i>	Modelling stamped edges in FEM breakage analyses of high-strength steel safety components. <i>R A Lingbeek, D Schalk-Kitting, P Gruschka, M Uurike, P Peetsalu, P Blome</i>	Process Stability and Application of 1900 MPa Grade Press Hardening Steel with reduced Hydrogen Susceptibility. <i>D Rosenstock, T Gerber, C Castro Muller, S Stille, J Banik</i>	Analytical approach to damage prediction in incremental sheet metal forming. <i>S Bharti, D Raneesh, H Krishnaswamy, S Kumar Panigrahi</i>
16:15	Implicitization of the Vegter Yield Criterion. <i>J Sheng, S Y Yang, W Tong</i>	A Study of the Boundary Conditions in the ISO-16630 Hole Expansion Test. <i>A Barlo, M Sigvant, L Perez, M S Islam, J Pilthammar</i>	Development of a process chain for multi-stage sheet metal forming of high-strength aluminium alloys. <i>J Gunzel, J Hauß, C Gaedigk, J Bergmann, P Groche</i>	A case study of mechanical and thermal fatigue of press hardening dies. <i>K Chantziara, F Javadzadeh Kalahroudi, J Bergstrom, M Grehk, P Ulfberg</i>
16:35	Coffee break			
	Amphitheatre	Room 24	Room 25	Room 27
	Advanced simulation methods for sheet metal forming	Shear cutting and blanking & sheared edge formability (mini-symposium)	Tribology, friction and wear in forming	Damage and fracture in sheet metal forming
Chair	M Oliveira	TBC	A H van den Boogard	K Mocellin
17:00	Springback inhibition of Ti-6Al-4V sheet with impact hydroforming at room temperature. <i>H Li, Y Xu, S F Chen, H W Song S H Zhang</i>	Blanking of Stainless Steel. <i>I Patzold, P Trober, M Welm, W Volk</i>	Identification of the industrial automotive stamping contact pressure distribution and blue pattern identification. <i>E Saenz de Argandona, J Cillaurren, J Trinidad, I Llavori, A Zabala, J Mendiguren</i>	Formability of roll-formed carbon fibre reinforced metal hybrid components and its experimental validation. <i>X Hu, C Creighton, P Zhang, N Muller, T Reincke, R Taube, M Weiss</i>
17:20	On the reliability of yield functions in deep drawing simulations. <i>H Ghiabakloo, N Manopulo, J Mora, B Carleer, A Van Bael</i>	Reduction of adhesive wear with use of tool coating reducing thermoelectric currents <i>A Schrepfer, A Schott, P Trober, M Keunecke, M Welm, F Steinlehner, R Golle, W Volk</i>	Investigation on tool properties for the production of components with micro textured surfaces <i>M Reck, M Merklein</i>	Anisotropic rate-dependent ductile fracture of AA5754 cold-rolled sheets <i>B Erice, C C Roth, E Saenz de Argandona, B Rolfe, J Mendiguren</i>
17:40	Advanced part design method for springback minimization of stamped sheet metal car body components. <i>A Birkert, B Hartmann, M Nowack, A Petker, M Scholle, P Zimmermann, T Kraft</i>	Prediction of sheared edge characteristics of advanced high strength steel <i>O Sandin, S Hammarberg, S Parareda, D Frometa, D Casellas, P Jonsen</i>	TriboForm® software evaluation for ArcelorMittal Steel Products <i>A Bouzid, H Bour</i>	Microstructural and Mechanical Property Response from Prior Cold Work and Heat Treatment of Quenched and Partitioned Steels <i>M Thrun, V Euser, A Clarke, K Clarke</i>
18:00	Advanced Springback Compensation Strategy through elimination of avoidable elastic strain energy. <i>A Birkert, P Zimmermann, B Hartmann, M Nowack</i>	An approach to describe edge ductility <i>V Kesti, M Folmerz, R Vierela, P Rautio, R Ruoppa, P Plosila and A Kajjalainen</i>	Investigation of frictional behavior of steel and aluminum at different temperatures. <i>G Huang, F Fenton</i>	Less Damage Accumulation of Aluminum Alloy Sheet during Electromagnetic Forming Based on Gurson-Tvergaard-Needleman Model. <i>W Liu, H Zhou, Z Meng, J Li, S Huang</i>
18:30	Welcoming drink			

Wednesday 8 June

Amphitheatre				
Chair	A Andrade-Campos			
09:00	Plenary: Myoung-Gyu Lee, Significance of microstructure effect in constitutive modeling for sheet metal forming simulations and applications			
09:45	Plenary: Fabrice Pierron, The Virtual Fields Method for anisotropic plasticity: a Material Testing 2.0 Perspective			
10:30	Coffee break			
	Amphitheatre	Room 24	Room 25	Room 27
	Non-conventional testing methods for appropriate material characterization (mini-symposium)	Warm and hot forming	Necking, instability and formability limit prediction	Advanced simulation methods for sheet metal forming
Chair	T Balan	S Bruschi	G Vincze	Y Korkolis
11:00	H Laurent & L Leotoing keynote to introduce the mini-symposium	Warping reduction in bending of U-profiles through partial heating over the cross-section. <i>E Hoffmann, F Kolpak, A E Tekkaya</i>	Modeling tension-compression asymmetry and failure anisotropy in bending operations of a magnesium alloy. <i>D Steglich, J Besson</i>	Understanding the influence of servo-press kinematics on a sheet metal forming process using a simulation-based approach. <i>M Burlat, A Maillard</i>
11:20		Upset bulging as a preforming operation for hot metal gas forming of 22MnB5 tubes. <i>A Alimov, R Haase, A Sviridov</i>	Prediction of forming limit curve for AA6061-T6 at room and elevated temperatures. <i>A Kacem, H Laurent, S Thuillier</i>	Assembly simulation development and validation project with industrial applications. <i>F Tinti, M Fontana, L D Scintilla, A Mirabile, B Carleer</i>
11:40	Development of a high-temperature double-layer bulge test for failure prediction in gas-based hot-forming of a high-strength aluminium alloy. <i>T Teeuwen, N K Baru, K J Tilly, D Bailly, G Hirt</i>	Bulge testing metal sheets at elevated temperatures. <i>D Staupendahl</i>	An alternative time-based strategy for the evaluation of forming limits using optical experimental measurements. <i>C Karadogan, M Goerz, M Liewald, Marco Buhler</i>	Evaluating the influence of the deformation of the forming tools in the thickness distribution along the wall of a cylindrical cup. <i>M C Oliveira, D M Neto, A F G Pereira, J L Alves, L F Menezes</i>
12:00	Axisymmetric V-Bending of Sheet Metal: Determining the Fracture Strain and the Weakest Material Direction for Plane Strain Tension in One Test. <i>T Beerli, V Grolleau, D Mohr, C C Roth</i>	Improved formability of HMGF components by preforming in an upset bulging process. <i>R Haase, M Werner, V Krausel, A Alimov, A Sviridov, S Hartel</i>	Investigation on the formability of friction stir welded Al-TWB through incremental forming. <i>Shubham, K K Nayak, P J Tej, K Bandyopadhyaya</i>	Quantitative Surface Quality Assessment of Car Outer Panels with a Virtual Light Room. <i>F Guillon, A Camanho</i>
12:20	Mechanical properties and interfacial damage of carbon steel/stainless steel cladding plate: application to FE simulation of JCOE pipe forming. <i>C Moon, J Y Won, S W Kim, M G Lee</i>		Deep drawing of DC06 at high strain rates. <i>M Tulke, E Galiev, V Psyk, V Krausel, A Brosius</i>	A novel incremental sheet metal forming process for long and open section profiles. <i>A Essa, B Abeyrathna, B Rolfe, M Weiss</i> On the reliability of yield functions in deep drawing simulations
12:40	Lunch			
Amphitheatre				
Chair	V Grolleau			
14:00	Plenary: Dirk Mohr, Creating Big-Data on Sheet Metal Plasticity and Failure			
	Amphitheatre	Room 24	Room 25	Room 27
	Mini-symposium in the honour of Prof Dr Pavel Hora	Non-conventional testing methods for appropriate material characterization (mini-symposium)	Necking, instability and formability limit prediction	Shear cutting and blanking & sheared edge formability (mini-symposium)
Chair	D Mohr	K Clarke	C Karadogan	W Volk

14:50	Simulations of plastic deformation by anisotropic hardening yield functions for QP1180. <i>Z Chen, Y Lou</i>	Accurate plane strain compression test validation. <i>A Neag, Q Hu, T Balan</i>	Post necking evaluation of the tensile test using artificial neural networks. <i>F Hakenbeck, R Lafarge, A Brosius</i>	Design Guidelines for interlocked stator cores made of CoFe sheets. <i>D M Martin, F Backer, B Deusinger, C Kubik, P Gehringer, J Schroder, P Groche</i>
15:10	Superposing tensile stresses into single point incremental forming to affect martensitic transformation of SS304. <i>E M Mamros, F Maaß, M Hahn, A E Tekkaya, J Ha, B L Kinsey</i>	On the use of elliptical bulge tests in material characterization through inverse methodologies. <i>M Rossi, A Lattanzi</i>	Development of a plane strain tensile test to characterize the formability of Al alloys for automotive applications. <i>M Gille, F Mas, J C Ehrstrom, D Daniel</i>	Optimum blanking clearance choice method by an approach coupling experimental trials and simulations. <i>P Schreiber, J Rizk, M Rachik, A Maillard</i>
15:30	Inline control strategy for the deep drawing processes. <i>M Liewald, C Karadogan, M Barthau</i>	Hot tensile and expansion tests of Ductibor®1000 steel. <i>N Demazel, A Boyer, H Laurent, M C Oliveira</i>	Enhanced formability through continuous bending superposed with uniaxial tension and recovery heat treatment in AA5182-O aluminum alloy. <i>J Ha, S M. Mayer, N Matukhno, M Knezevic, B L Kinsey</i>	Evaluation of hole expansion formability of high strength AA7075 alloy under varying temper conditions. <i>K Prasad, A Salam Ebrahim, H Krishnaswamy, U Chakkingal, D K Banerjee</i>
15:50	Effect of Initial Temper on the Warm Forming Characteristics of a High Strength 7000-series Al-Zn-Mg-Cu Alloy. <i>S DiCecco, M Di Ciano, C Butcher, M Worswick</i>	On the topology design of a mechanical heterogeneous specimen using geometric and material nonlinearities. <i>M Gonçalves, A Andrade-Campos, S Thuillier</i>	On the formability of aluminum alloy processed by asymmetric rolling. <i>G Vincze, M C Butuc</i>	Measurement of edge fracture strain of dual-phase steels by in-plane bending test. <i>M Masoumi Khalilabad, ES Perdahcioglu, EH Atzema, A H van den Boogaard</i>
16:10	Evaluation of testing methods for the characterization of material properties under plane strain. <i>M Lenzen, M Merklein</i>	Automated Fracture Detection from DIC Images: A Machine Learning Technique Based On Optical Texture Features. <i>C C Roth, A Muller, N Karathanasopoulos, D Mohr</i>	Fully coupled damage model accounting for yield surface distortion, stress triaxiality and Lode angle dependency: Application to metal forming simulations. <i>H Badreddine, C Labergere, S Thuillier, K Saanouni, L Duval</i>	Sheared Edge Formability Characterization of High Strength Aluminum Alloys at Room and Elevated Temperatures using Hole Expansion Tests. <i>A Narayanan, R George, K Cheong, A Mohamadizadeh, C Shi, R Long, E Boettcher, A Weinschenk, S Huhn, M J Worswick, C Butcher</i>
16:30	Coffee break			
	Amphitheatre	Room 24	Room 25	Room 27
	Mini-symposium in the honour of Prof Dr Pavel Hora	Non-conventional testing methods for appropriate material characterization (mini-symposium)	Material constitutive modelling	Intelligent tools for sheet metal forming
Chair	C C Roth	H Laurent	M G Lee	P Duroud
17:00	Simplified Distortional Hardening Modeling with Rate-Dependency for Nonlinear Strain Paths in Sheet Metal Forming. <i>H Choi, J W Yoon</i>	Characterization of elasto-plastic transition of sheet metal by using large-scale four-point flexion test. <i>W Liegard, L Tabourot, P Balland</i>	Distortional plasticity framework for the forming of advanced high strength steels. <i>B Reyne, F Barlat</i>	Analysis of Distributed-Ledger-Technology for the Exchange of Design, Production and Simulation Data in Roll Forming. <i>B Kohl, M Kruger, T Dietl, M Lechner, E Trunzer, M Merklein, A Sedlmaier, B Vogel-Heuser</i>
17:20	The Thermoelastic Effect and its Relation to the Onset of Yielding. <i>W Volk</i>	On the inverse identification methods for forming plasticity models using full-field measurements. <i>A Andrade-Campos, N Bastos, M Conde, M Gonçalves, J Henriques, R Lourenco, J M P Martins, M G Oliveira, P Prates, L Rumo</i>	Prediction of macroscale hardening and fracture behavior based on the reduced texture approach. <i>D Noh, J W Yoon</i>	Control of draw-in in the deep-drawing process by regulating the force on the blank-holder. <i>M E Palmieri, L Tricarico</i>

17:40	Modeling the influence of hydrostatic stress on plastic behavior of advanced high strength steels. <i>F Barlat, J M Kim, S Y Lee, J H Kim</i>	Influence of criteria on the determination of forming limits in thickness reduced cruciform specimens. <i>Z Wang, D Guines, L Leotoing</i>	Correlation between laboratory scale local formability data and tension test based performance indicators for 780 MPa grade advanced high-strength steels. <i>J Y Kim, J Hyun, B Hance, M G Lee</i>	Digital Twins in deep drawing for virtual tool commissioning and inline parameter optimization. <i>L Klingel, L Penter, P Mayer, S Ihlenfeldt, A Verl</i>
18:00	Part Tracking and Model Driven Control in Stamping at Volvo Cars: First steps of implementation of evoTrQ and future plans. <i>M Sigvant, J Pilthammar, V Gullberg, J Weingarten, P Butzhammer, S Tatipala, A Barlo, S Islam, T Chezan, I Picas, J Wiberg</i>		Understanding the Properties of TRIP-Assisted Steels at Elevated Temperatures using Mechanical Testing, Synchrotron X-Ray Diffraction, and Empirical Models. <i>C B Finfrock, B Ellyson, S L J Likith, D Smith, C Rietema, A Saville, B N L McBride, M M Thrun, D Bhattacharya, C G Becker, J S Park, J Klemm-Toole, A J Clarke, K D Clarke</i>	
18:30	Departure for conference dinner			

Thursday 9 June

	Amphitheatre			
Chair	J W Yoon			
09:00	Plenary: Lars Greve, AI-based surrogate models for crash simulation applications			
09:45	Plenary: Kaan Inal, An advanced artificial intelligence framework to simulate metal forming processes			
10:30	Coffee break			
	Amphitheatre	Room 24	Room 25	Room 27
	AI in sheet metal forming (mini-symposium)	Advanced simulation methods for sheet metal forming	Tribology, friction and wear in forming	Damage and fracture in sheet metal forming
Chair	K Inaal	K Narasimhan	L Galdos	A Santos
11:00	M. Liewald - keynote to introduce the mini-symposium	Influence of the forming process on springback. <i>U Durmaz, S Heibel, T Schweiker, A Prabhakar, M Merklein</i>	An industrial application case to predict galling in hot stamping processes. <i>S Berahmani, L Bruinekreeft, A Guner, J Venema, M Sigvant</i>	Impact of diffusible hydrogen content on the deep drawing ability of AHSS, application on a DP1180 steel. <i>F Vucko, V Helbert, Y Demmouche, M Dhondt, T Dieudonne, A Aoufi, T Sturel, B Weber</i>
11:20		Automatic generation of 3d spiral tool path for incremental sheet metal forming of mechanical parts with complex geometry. <i>S Frikha, L Giraud-Moreau, A Bouguecha, M Haddar</i>	Local roughness impact on automotive outer panel forming. <i>A Zabala, E Saenz de Argandoña, D Canizares, I Llavori, N Otegia, J Mendiguren</i>	On the evaluation of fracture strains from shear tensile tests of sheet metal. <i>L Wagner, B Hackl, E Berger, A Grunsteidl</i>
11:40	Field meta modelling for process design in complex sheet metal forming. <i>C Schwarz, S Kriechenbauer, R Mauermann, W G Drossel</i>	Experimental and numerical study of a bending process on ultra-thin sheets of copper alloys. <i>S Thuillet, P Y Manach, F Richard, S Thibaud</i>	Wear of crashforming coated tool steel dies. <i>A Mussa, M Fallqvist, J Bergström, J M Contero-Castillo, L E Hernandez-Castillo</i>	
12:00	A data-driven methodology for separately quantifying the effects of tool wear of upper and lower tool on the quality of cut surfaces in shear cutting processes. <i>S Niessner, M Liewald</i>	Multistage forming process of copper thin sheet for electronic applications. <i>A Lagroum, L Poupon, C Le Graet, P Y Manach, S Thuillier</i>	How influential are lubrication properties on defining the process window of drawing process? A numerical and experimental study <i>S Berahmani, T Chezan, M Roelofsen, M Stippak, B Carleer</i>	
12:20	Optimisation of deep drawn corners subject to hot stamping constraints using a novel deep-learning-based platform. <i>H R Attar, N Li</i>	Modeling and prediction of the differential expansion of a multi-material structure subjected to a heating process with automotive application. <i>L M da Silva, C Cellard, L Sohier, O Ponte-Felgueiras, R Creac'hcadec</i>		
12:40	Lunch			
	Amphitheatre			
Chair	F Barlat			
14:00	Plenary: Pavel Hora, Impact of CO2 constraints on industrial sheet metal forming			
14:45	Plenary: Stéphane Tondo, Steel as carbon neutral material of choice: towards local decarbonized steel production in Europe			
	Amphitheatre	Room 24	Room 25	Room 27
	AI in sheet metal forming (mini-symposium)	Non-conventional testing methods for appropriate material characterization (mini-symposium)	Shear cutting and blanking & sheared edge formability (mini-symposium)	Mini-symposium in the honour of Prof Dr Pavel Hora
Chair	M Liewald	L Leotoing	M Weiss	D Mohr

15:35	Towards a real-time tool state detection in sheet metal forming processes validated by wear classification during blanking. <i>C Kubik, D A Molitor, M Rojahn, P Groche</i>	On the use of the Gleeble test as a heterogeneous test: sensitivity analysis on temperature, strain and strain rate. <i>B. Coelho, S. Thuillier</i>	Stretch flangeability of AHSS automotive grades versus cutting tool clearance, wear, angle and radial strain gradients. <i>P Larour, J Hinterdorfer, L Wagner, J Freudenthaler, A Grunsteidl, M Kerschbaum</i>	Design of a simple shear test for large strains with sequential re-machining of the specimen edges. <i>X Colon, M Adlafi, B Galpin, L Maheo, V Grolleau</i>
15:55	Predicting Dynamic Process Limits in Progressive Die Sheet Metal Forming. <i>D Budnick, A Ghannoum, F Steinlehner, A Weinschenk, W Volk, S Huhn, W Melek, M Worswick</i>	A relative approach for uncertainty quantification of inversely identified material behavior using a heterogeneous test for sheet metal. <i>M Conde, S Coppieters, A Andrade-Campos</i>	Adjustment of fracture locus to improve edge crack resistance. <i>N Habibi, S Munstermann</i>	Advanced Formability and Surface Failure Analysis: Moving beyond the traditional FLD. <i>N Manopulo</i>
16:15	Metamodeling of a deep drawing process using conditional Generative Adversarial Networks. <i>P Link, J Bodenstab, L Penfer, S Ihlenfeldt</i>	Validation of Finite-Element Models using Full-Field Data. <i>L Wittevrangel</i>	Investigations on thermal assisted fine blanking process. <i>C Maurer</i>	An Experimental Study on Formability Analysis of Components Formed During Incremental Sheet Forming. <i>K Narasimhan</i>
16:35	Using Artificial Neural Networks on Identification of Material Parameters and Press-Brake Bending. <i>D J Cruz, M R Barbosa, A D Santos, S S Miranda, R L Amaral</i>			
17:00	Coffee break			
	Amphitheatre			
17:00	Closing ceremony: next IDDRG conference & farewell			