

Program of the
24th International Deep-Drawing Research Group Congress

id drg

20 - 22 June 2005
Besançon - France

Innovations in deep - drawing
*New trends in industries :
from simulations to
applications*









FOREWORD

The 24th edition of the International Deep Drawing Research Group Congress will be held in Besançon, France, from June 20 till 22, 2005. The conference will concentrate on the innovations in deep drawing and a large place will be accorded to presentations devoted to new trends in industries and the use of experiment-simulation comparisons for improving the vehicles of the future.

Nowadays, automotive industry is confronted with recurrent problems (springback, tearing, etc.) that appear during metal forming. It has now to face new recommendations for energy consumption and gas emission. It has also to build lighter but stronger vehicles. To achieve its goal, it has to use new materials, to investigate new processes, to understand more physics.

A scientific committee coming from both industrial R&D centres and academic research institutions has worked in that direction ; it has selected the lectures that will be presented during the conference. I hope the exchanges and considerations during the conference will open up new industrial practices and perspectives.

*Prof. Nathalie Boudeau
Chairwoman of the Organizing Committee*

CONFERENCE TOPICS

- Material behaviour, formability, damage ...
- Advanced tooling design
- Sheet forming processes
- Process, control and monitoring
- Tool-part contact

Exhibition installation

Friday 17th June 2005

9:00 am	12:00 am	Registration of exhibitors materials
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Saturday 18th June 2005

9:00 am	12:00 am	Registration of exhibitors materials
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Welcome of participants

Sunday 19th June 2005

4:00 pm	9:00 pm	Registration, wine tasting and welcome buffet Bus shuttle from the railway station to the Maison de l'Economie and hotels (Ibis City and Mercure).
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See last page for more information on bus shuttle service

Conference Programme

	Sunday 19 th	Monday 20 th	Tuesday 21 st	Wednesday 22 nd	
8:00		Registration Welcome Breakfast	MATERIAL 2	CONTACT	
		Opening	Break	Break	
		FORMING 1	PROCESS 1	PROCESS 2	
12:00				Closing	
		Lunch	Lunch	Lunch	
1:45			MATERIAL 1	MATERIAL 3	
		Break	Break	Technical visit	
			TOOLING		FORMING 2
6:00		Registration Wine Tasting Welcome Buffet	Cocktail		
			Besançon Tour		
8:30					
12:00			Dinner		

Monday, 20th June 2005

Registration and welcome breakfast (8:00 – 9:15 am)

Opening (9:15 – 9:45 am)

Session FORMING 1 (9:45 – 11:55 am)

Chairman : R. Kergen

9:45	10:15	F. Moussy <i>Some considerations on experimental and numerical aspects linked to deep-drawing : examples of interest and limitations</i>
10:15	10:35	E. Berger, T. Brenne, A. Heath, B. Hochcoldingier, K. Kassem-Manthey, L. Kessler , N. Koch, G. Kortmann, A. Kröff, T. Otto, G. Steinbeck, E. Till, H. Verhoeven, T.C. Vu <i>Local strain prediction in small die radii regions – Optimization of numerical simulation parameters for modeling a part outer</i>
10:35	10:55	B.A. Behrens, O. Vogt, J. Poelmeyer <i>Development of a reliable and economic forming process for magnesium sheet metal</i>
10:55	11:15	E. Iriondo , B. Gonzalez, I. Eguia, M. Gutierrez, G.S. Daehn <i>Experimental study of springback elimination using electromagnetic forming</i>
11:15	11:35	A. Bacha , H. Klocker, D. Daniel <i>Trimming of aluminium alloy sheets : experimental and numerical investigations</i>
11:35	11:55	<i>Present and future IDDRG conferences</i>

Lunch (12:00 am – 1:40 pm)

Session MATERIAL 1 (1:45 – 2:55 pm)

Chairman : M. Tisza

1:45	2:15	H. Nishimura, H. Tanaka, T. Komatsubara, K. Koyama, H. Hayashi <i>The development of aluminium alloy sheets with high formability for automotive applications</i>
2:15	2:35	D. Daniel , P. Litalien, R. Shahani <i>Challenges for high volume aluminium car body applications</i>
2:35	2:55	P. Simon , F. Sabourin, F. Morestin, L. Phan <i>Direct identification of a combined hardening with a cyclic bending test</i>

Coffee Break, Posters & Exhibition (2:55 – 3:35 pm)

Session TOOLING (3:35 – 5:35 pm)

Chairman : F.J. Lenze

3:35	3:55	M. Roelofsen , C.H.I.J. Ten Horn <i>How well do virtual stampings compare to real parts ?</i>
3:55	4:15	M. Oudjene , F. Mercier, L. Penazzi, J.L. Batoz <i>Analysis and design of laminated tooling in sheet metal stamping</i>
4:15	4:35	M. Gösling , W. Homberg, M. Kleiner, Ch.Klimmek <i>Statistical modeling of geometrical constraints for high-pressure sheet metal hydroforming</i>
4:35	4:55	B. Kolleck , S. Pfanner, C. Lind <i>Press hardening of boron steel sheets – forming and tooling technology with high potential</i>
4:55	5:15	A. Chambard, P. Guyon, F. El Khaldi, M. Lambriks , D. Ling <i>Effective stamping simulation using automatic blank and process optimization techniques</i>
5:15	5:35	C. Bouhéliier , P. Marchand, H. Sfar <i>Expert tools for stamping</i>

Cocktail at Palais Granvelle (6:00 – 7:00 pm)

Visit of Besançon by boat (7:15 – 8:30 pm)

Tuesday, 21st June 2005

Session MATERIAL 2 (8:00 – 10:10 am)

Chairman : M. Tisza

8:00	8:30	L. Delannay , F. Lani, P.J. Jacques <i>Simulation of deep-drawing of TRIP-assisted multiphase steel based on a micro-macro modelling</i>
8:30	8:50	J.L. Avendano , J.I. Fernandez, E. Schedin, J. Kajberg, E. Ratte, A. Frehn <i>Implementation of a non-isothermal material model for austenitic stainless steels in deep drawing simulation – Finding of optimum process parameters for improving deep drawability</i>
8:50	9:10	F. Cayssials, X. Lemoine <i>Predictive model for FLC (Arcelor model) upgraded to UHSS steels</i>
9:10	9:30	K. Mattiasson , M. Sigvant <i>On the choice of yield criterion for industrial sheet forming simulations</i>
9:30	9:50	A. Revuelta , T. Manninen, J. Larkiola, A.S. Korhonen <i>Testing a combined isotropic and non linear kinematic hardening model in forming of austenitic stainless steel</i>
9:50	10:10	K. Pöhlandt , A.E. Tekkaya, J. Schröck <i>Concepts for characterizing plastic anisotropy of sheet metal</i>

Coffee Break, Posters & Exhibition (10:10 – 10:40 am)

Session PROCESS 1 (10:40 – 12:00 am)

Chairman : N. Langerak

10:40	11:00	G. Mercuzot , Hein P. <i>Estimation of stamping forces for High Strength Steels (HSS)</i>
11:00	11:20	T. Kondou, G. Uemura, K. Ito , N. Mori <i>A new method to evaluate and compensate springback</i>
11:20	11:40	M. Trompeter , R. Krux, W. Homberg, M. Kleiner <i>Process control strategies for high-pressure sheet metal forming of large scale structures parts</i>
11:40	12:00	B. Axelsson, A. Andersson <i>Virtual pre-matching</i>

Lunch (12:00 am – 1:40 pm)

Session MATERIAL 3 (1:45 – 3:35 pm)

Chairman : M. Tisza

1:45	2:15	A. Col <i>Forming limit curves : are we at a turn ?</i>
2:15	2:35	P. Jurco, D. Banabic <i>A user-friendly programme for analyzing the anisotropy and formability of sheet metals</i>
2:35	2:55	P. Teixeira, M.C. Butuc, A.D. Santos , A.B. Rocha, J.J. Gracio <i>Development of a modular Forming Limit Diagram code and its application to F.E. simulation</i>
2:55	3:15	M. Weiss , P.D. Hodgson, M. Dingle, B.F. Rolfe <i>The influence of temperature on the formability of metal/polymer/metal-laminates</i>
3:15	3:35	S. Gaied , F. Pinard, F. Schmit, J.M. Roelandt <i>Numerical determination of specific forming limit curve for tailor welded-blanks using the major strain rate evolution criterion</i>

Coffee Break, Posters & Exhibition (3:35 – 4:05 pm)

Session FORMING 2 (4:05 – 5:25 pm)

Chairman : R. Kergen

4:05	4:25	A. Diehl , U. Engel M. Geiger <i>Investigation of the springback behavior in metal foil forming</i>
4:25	4:45	K. Lamprecht , M. Merklein, Geiger M. <i>Manufacturing complex sheet metal components by hydroforming of deep-drawn preforms</i>
4:45	5:05	S. He, A. Van Bael , P. Van Houtte, Y. Tunckol, J. Verbert, J. Duflou <i>Study on the thinning during single point incremental forming of aluminium sheets</i>
5:05	5:25	Ch. Husson , S. Ahzi, L. Daridon, C. Poizat <i>Numerical study of the effects of processing parameters in the high-speed blanking in the connectic field</i>

7:15 pm Bus to the Château de la Dame Blanche

Dinner (8:00 - 12:00 pm)

Wednesday, 22nd June 2005

Poster sessions

Session CONTACT (8:00 – 9:30 am)

Chairman : M. Smith

8:00	8:30	C. Dane , H. Vegter, M. Workel <i>New approach to demonstrate the need for a dedicated friction model to improve numerical simulations</i>
8:30	8:50	J.M. Pothier , X. Roizard, J.Y. Hihn, J.F. Beteau, G. Monteil <i>Global analysis method of friction parameters in strip drawing tests</i>
8:50	9:10	G. Lovato , H. Giraud, E. Van Der Heide, E.D. Stam, I. Heikkila, N. Akdut, F. Clarysse, P. Caenen <i>Influence of lubricants and tool materials upon galling of stainless steels</i>
9:10	9:30	C.M. Wichern , W. Rasp <i>A study of roughness anisotropy of surfaces produced by laboratory and industrial rolling and surfaces generated by mathematical modelling</i>

Coffee Break, Posters & Exhibition (9:30 – 10:00 am)

Session PROCESS 2 (10:00 – 11:50 am)

Chairman : N. Langerak

10:00	10:30	E. Till , A. Raab <i>Modelling effects in springback simulation</i>
10:30	10:50	A.J. Baptista , B.M. Chaparro, J.M. Antunes, D.M. Rodrigues, L.F. Menezes <i>Numerical and experimental study on the splitting ring test for springback prediction</i>
10:50	11:10	E. Isogai , T. Yoshida, N. Suzuki, A. Uenishi, Y. Kuruyama <i>Forming techniques and spring-back simulation for high strength steel in sheet metal forming</i>
11:10	11:30	Y. Ledoux, E. Pairel, R. Arrieux , P. Teixeira, A. Santos, J. Duarte <i>A method of springback and tool compensation based on finite element method and design of experiment</i>
11:30	11:50	B. Carleer , L. Schidzig, A. Wendenburg <i>Validation of springback. Influence and sensitivity on a real world automotive part</i>

Closing (11:50 – 12:05 am)

Lunch (12:10 am – 1:10 pm)

Technical Tour (1:15 – ~6:30 pm)

ANDERSSON R., ODEN M., POWELL J., MAGNUSSON C.

A new equation to describe the effect of microstructural transformation of austenitic stainless steels during plastic deformation

BALHOUL R., DAL SANTO PH., POTIRON A.

Design of experiments and response surface methodology applied to the optimisation of stresses and bending load in sheet metal forming

BLECK W., KAUP B., THOMSER C., RATTE E., PARISER G., SAUER R.

Innovative testing methods for tinplate

CARLSSON B.

Effects of wrinkling on delayed fracture in deep drawing

GEOFFRAY J.L., ADAMI J.P.

Influence of the specimen geometry for the determination of the Uni Axial tension necking point for FLD

GONZALEZ B., EGUIA I., GUTIERREZ M.A., FERNANDEZ J.I., ARROYO A., IRLONDO E., JIMBERT P.

Electromagnetic forming for automotive applications in LBEIN

HUANG M.

Springback Characterization and Control of Advanced High Strength Steel

LANGE CH., AUGER P., KANJI NANJI A., MASSONI E., FELDER E.

Hemming simulations with different element formulations and material models

RACZ G., LEMOINE X., BALAN T.

Implementation of advanced behaviour laws and validation of their numerical prediction for sheet metal forming

SERRI J., MARTINY M., MAKKOUK R., FERRON G., BOURGEOIS N.

Experimental and numerical analysis of the formability of TRIP steels

STROPPE H., VOVK A., VOVK V., TARAN V.

New complex evaluation of formability

VAN TYNE C.J., LEVY B.S.

Calculation of strain after bending with a known restraining forces

WADMAN B., MOSHFEGH R., GROTH H., ROOS H., CARLSSON P.A., ALRUTZ A.

Forming methods increasing the strength of austenitic stainless steel products

WANG B., LEE T.C., CHAN L.C.

Study of strain rate effect on SPC and Al6xxx with numerical simulations

Social events

Sunday 19th June 2005

5:00 – 7:00 pm Wine tasting
 7:00 – 8:30 pm Welcome Buffet

Monday 20th June 2005

8:00 – 9:35 am Welcome breakfast
 6:00 – 7:00 pm Cocktail at Palais Granvelle Executive Committee
 7:00 – 8:30 am Visit of Besançon by boat Meeting

Tuesday 21st June 2005

8:00 – 12:00 pm Dinner at the Château de la Dame Blanche in Geneuille

Wednesday 22nd June 2005

9:30 – 10:00 am Coffee-break with special cakes from Franche-Comté



The conference will be held in the Maison de l'Economie of the CCI of Doubs



The cocktail will take place in the Square of Palais Granvelle

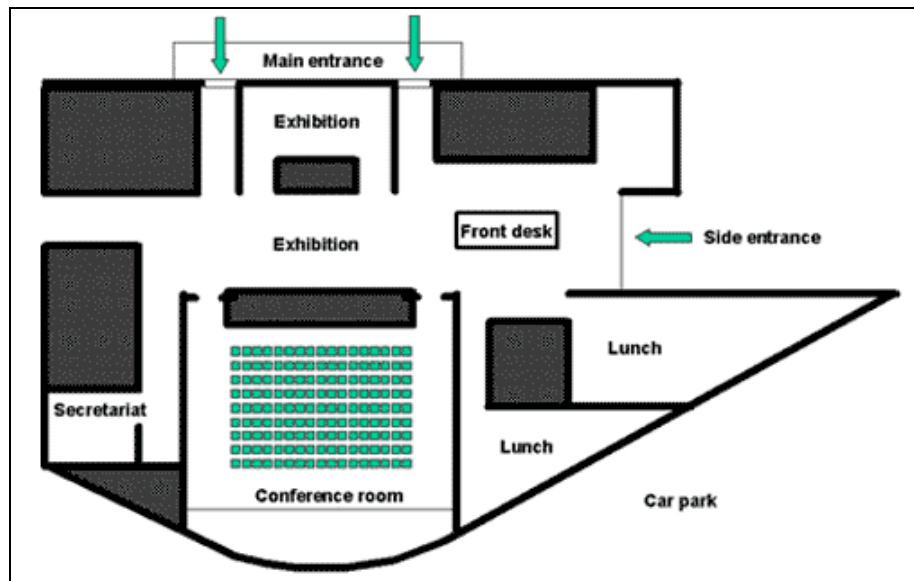


A visit of Besançon for discovering the Boucle du Doubs

A dinner in the Château de la Dame Blanche located in a large park in Geneuille in 15 km of Besançon



Map of the « Maison de l'Economie »



For easy access to the conference, use the side entrance and register at the front desk.

For participants coming by car, 80 places are available in the car park. Ask for the PIN code to enter in the car park.

Map of Besançon

Around the conference location



10: Mercure hotel
 12: Ibis City hotel
 near 12 : La Maison de l'Economie
 near 13,14 : railway station (gare Viotte)
 near 7 : Palais Granvelle (near Kursaal)

Coming in Besançon

By plane :

Arrival to Paris-Charles de Gaulle airport

From Terminal 1, 2 and 3, take RER B until Gare du Nord station then RER D until Gare de Lyon station (45' ; ~8 €)

Arrival to Orly airport

Take Orlyval until Antony station, then RER B until Chatelet-les Halles station and finally RER A or RER D until Gare de Lyon station (~45' ; ~9 €)

Arrival to Saint Exupery airport

Join Lyon-Part Dieu railway station

Arrival to Basel-Mulhouse airport

Join Mulhouse railway station

By train :

From Paris- Gare de Lyon

Departure	Arrival
08:44 am	11:22 am
10:34 am	01:10 pm
01:09 pm	03:47 pm
05:14 pm	07:47 pm
07:14 pm	09:49 pm
09:14 pm	11:46 pm

Only direct trains are specified

From Lyon – Part Dieu

Departure	Arrival
09:30 am	11:44 am
12:36 am	03:40 pm
12:50 am	03:01 pm
02:40 pm	05:03 pm
05:09 pm	07:32 pm
07:33 pm	10:00 pm

Only direct trains are specified

From Mulhouse

Departure	Arrival
09:07 am	10:47 am
09:29 am	10:52 pm
01:05 pm	02:33 pm
02:59 pm	04:35 pm
04:32 pm	06:13 pm
07:21 pm	09:01 pm

Only direct trains are specified

More details at <http://www.sncf.com>

By car :

From Charles de Gaulle airport or North of Paris

Follow main direction Marne-la-Vallée then main direction Troyes-Reims-Nancy.

Join motorway A5b then A5 main direction Troyes-Lyon.

Near after Dijon, join motorway A39 and then A36 main direction Besançon.

Leave motorway A36 at exit #4 (direction Lausanne).

From Orly airport or South of Paris

Follow main direction Marseille.

Take motorway A6 in main direction Lyon, Marseille.

Before Beaune, join motorway A31 and then A36 following main direction Besançon.

Leave motorway A36 at exit #4 (direction Lausanne).

From Lyon

Follow main direction Genève.

Take the motorway A42 then A40 following main direction Strasbourg.

Near Dôle, join motorway A36 following main direction Besançon.

Leave motorway A36 at exit #4 (direction Lausanne).

From Mulhouse or Germany

In Mulhouse, follow main direction Lyon-Belfort to take motorway A36.

Leave motorway A36 at exit #4 (direction Lausanne).

More details at <http://www.michelin.com>

Executive committee

H. Kleemola (Fi)	VTT Industrial Systems
A. Col (F)	Consultac
H. Hayashi (J)	Mater. Fab. Lab. RIKEN
R. Kergen (B)	RDCS Arcelor Innovation
E. Janssen (NL)	Corus Packaging Plus
N. Langerak (NL)	Corus RDT
F.-J Lenze (D)	ThyssenKrupp Stahl AG
B. Levy (USA)	B.S. Levy Consultants
A. Ranta-Eskola (Fi)	Rautaruukki Oy
M. Smith (USA)	Henkel Surface Technologies
M. Tisza (H)	University of Miskolc

Scientific committee

J.L. Batoz (F)	GIP-InSIC
N. Boudeau (F)	ENSMM/LMARC
C. Bouhelier (F)	CETIM
S. Bouvier (F)	Université Paris 13
M. Brunet (F)	INSA Lyon
D. Daniel (F)	Alcan
G. Ferron (F)	Université de Metz
J.C. Gelin (F)	ENSMM/LMARC
O. Ghouati (D)	Ford Aachen
E. Massoni (F)	CEMEF/ENSMP
K. Mattiasson (S)	Volvo
F. Moussy (F)	Renault
G. Philip (F)	PSA
P. Picart (F)	UFC/LMARC
F. Rondé-Oustau (F)	ENSTIMAC/CROMeP
C. Teodosiu (F)	Université Paris 13

Local organizing committee

T. Barriere (Co-chairman)	C. Froidevaux
M. Besson	P. Humbert
N. Boudeau (Chairwoman)	A.M. Marc
M.F. Burtheret	P. Paquier
A. Col (Co-chairman)	R. Paris
B. Demoulin	

EXHIBITION



SPONSORS



PARTNERS



Bus & Shuttle

Sunday 19th June 2005

3:50 – 6:15 pm	Shuttle service from the railway station to the Maison de l'Economie and hotels* Departure from the railway station at 3:50, 4:40, 5:10 and 6:15
7:50 pm	Bus from the railway station and the Maison de l'Economie to the hotels*
9:05 pm	Bus from the railway station and the Maison de l'Economie to the hotels*
10:00 pm	Bus from the railway station to the hotels*

Monday 20th June 2005

7:40 am	Bus from the hotels* to the Maison de l'Economie
5:50 pm	Bus from the Maison de l'Economie to the Palais Granvelle
7:15 pm	Bus from the Palais Granvelle to the Doubs river
11:00 pm	Bus to hotels*

Tuesday 21st June 2005

7:40 am	Bus from the hotels* to the Maison de l'Economie
5:50 pm	Bus from the Maison de l'Economie to the hotels*
7:15 pm	Bus from the hotels* to the Château de la Dame Blanche
12:00 pm	Bus from the Château de la Dame Blanche to the hotels*

Wednesday 22nd June 2005

7:40 am	Bus from the hotels* to the Maison de l'Economie
11:30 am – 2:00 pm	Shuttle service from the Maison de l'Economie to the railway station
1:15 pm	Bus from the Maison de l'Economie for the technical tour
~6:30 pm	Arrival at the railway station and hotels*

* Ibis City and Mercure hotels only



USEFUL ADDRESSES

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To IDDRG'2005 – Mrs. Francart

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CONFERENCE SECRETARY

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All information is available on the web site of the conference :

<http://www.ens2m.fr/iddrg2005>