

TTP 2013

SCIENCE MEETS INDUSTRY



2013 September 19 - 20
Graz | Austria

TOOLS AND TECHNOLOGIES
FOR PROCESSING ULTRA HIGH
STRENGTH MATERIALS

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ADDRESS OF WELCOME

UNIV.- PROF. DR .- ING. RALF KOLLECK
HEAD OF THE INSTITUTE
TOOLS & FORMING

Dear participants of the TTP2013, dear friends,

The world of metal forming is facing rapid changes. Companies change ownership. The competition regarding lowest prices becomes more and more fierce. The number of component variants as well as processing technologies increases continuously. The demand for functional parts with (ultra) high-strength properties is especially rising. In order to realize such challenging components, cold forming and hot forming technologies are applied in combination with highly advanced tool technologies, material concepts and sheet metals.

All of the above considerations contribute to the need of pushing forward purposeful innovations. This is why, a special emphasis has to be placed on the information transfer via presentations and the communication between industry partners.

The main goal of the TTP2013 conference is to connect various faculties and industrial representatives, in order to promote an informal exchange of ideas in this eventful period of time.

I hope you spend some informative and interesting days here in Graz - the core of Europe.

A handwritten signature in blue ink that reads "Ralf Kolleck". The signature is written in a cursive, flowing style.

SPONSORS



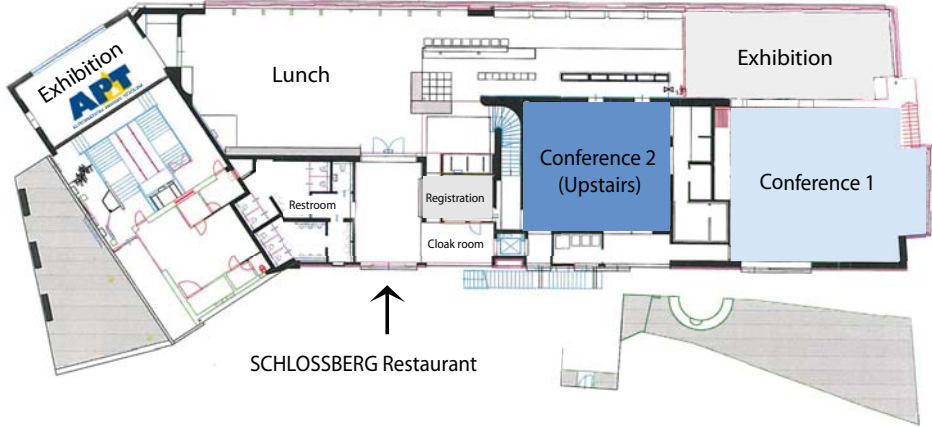
GENERAL INFOS

GRAZ	State capital of Styria Country Austria
LANGUAGE	German
POPULATION	290,000
CURRENCY	EURO
MONEY EXCHANGE	Is possible in all banks and exchange offices. ATM cards and main credit cards are accepted almost everywhere.
TIPPING	In restaurants a tipping of 5-10 percent is common. Hairdressers and taxi drivers get the same. In the hotel the porters usually receive 1 euro per bag, the maid 1-2 euro per day. The money is passed directly before the departure to the staff.
TIME ZONE	Central European Time (CET = GMT / UCT + 1)
WEATHER	Continental climate is mild
ELECTRICITY	220 volts
MOBILE PHONES	GSM
EMERGENCY TELEPHONE NUMBERS	In case of emergency events, requiring immediate help from the ambulance and fire rescue services, police, doctor etc. follow the instructions available at your hotel room. You may also call SOS Alarm by dialing 112. Especially: 122 Fire Department, 133 Police, 144 Rescue.
INSURANCE	Registration fees do not include insurance of any kind. The organizers cannot accept any responsibility or liability for injuries or losses sustained as a result of any cancellations, accidents, illness or other occurrences that may arise in connection with the TTP Conference 2013. Participants are advised to take appropriate travel and health insurance themselves.
PUBLIC TRANSPORT	All trams and buses in Graz can be used with one and the same ticket. The tariff zone 101 even covers the distance to the airport, which can be reached either by regional bus from Jakominiplatz or by train from main train station.

VENUE



SCHLOSSBERG
Am Schlossberg 7
A-8010 Graz



- Conference 1
- Conference 2
- Exhibition

PROGRAM OVERVIEW

September 19	
08:30-9:30	Registration
09:30-10:15	Opening Ceremony
10:15-11:00	KN 1
11:00-11:45	KN 2
11:45-12:00	Coffee break
12:00-12:15	HS 1
12:15-12:40	HS 2
12:40-13:05	HS 3
13:05-14:10	Lunch
14:10-14:35	HS 4
14:35-15:00	HS 5
15:00-15:25	HS 6
15:25-15:50	HS 7
15:50-16:20	Coffee break
16:20-16:45	TM 1 MP 1
16:45-17:10	TM 2 MP 2
17:10-17:35	TM 3 MP 3
17:35-18:00	TM 4 MP 4
18:00-18:30	Blue Hour
19:30-22:00	Conference Banquet

September 20	
KN 4	09:00-09:45
KN 5	09:45-10:30
KN 6	10:30-11:15
Coffee break	
HS 8	P 1 11:45-12:10
HS 9	P 2 12:10-12:35
HS 10	P 3 12:35-13:00
Lunch	
A 1	MP 5 14:00-14:25
A 2	MP 6 14:25-14:50
A 3	MP 7 14:50-15:15
A 4	MP 8 15:15-14:40
A 5	MP 9 15:40-16:05
Closing Remarks & Farewell Coffee	
	16:05-16:30

- Conference 1
- Conference 2
- Exhibition

Sessions:

- KN:** Keynote
- HS:** Hot Stamping
- TM:** Tools & Materials
- MP:** Material & Properties
- A:** Advanced
- P:** Processes

2013-09-19 THURSDAY

REGISTRATION

08:30 - 9:30 SCHLOSSBERG

OPENING CEREMONY

9:30 - 10:15

Welcome by the Host

Univ.-Prof. Dr.-Ing. Ralf Kolleck

Head of the Institute Tools & Forming; Graz University of Technology

Prof. Harald Kainz

Rector; Graz University of Technology

KEYNOTE 1 - 2

Chair: Ralf Kolleck

10:15 - 11:45

10:15 - 11:00

Keynote 1

Dr. Wolfgang Leitner;

Andritz AG

Andritz Equipment for Automotive Lightweight Design

11:00 - 11:45

Keynote 2

Dr. Thomas P. Meichsner;

Magna Cosma Europe

Innovative Concepts for Lightweight and Hybrid Structures

COFFEE BREAK

11:45 - 12:00 Restaurant SCHLOSSBERG

HOT STAMPING 1-3

Chair: Lothar Gräbener

12:00 - 13:05

12:00 - 12:15

Hot Stamping 1

Invited Lecture, Erland Lundström; Schuler AG

*More than 30 Years Experience in Hot Stamping,
Past and Future*

12:15 - 12:40

Hot Stamping 2

Jens Aspacher; Schuler SMG GmbH & Co. KG

Schuler Equipment for Press hardening

12:40 - 13:05

Hot Stamping 3

Max Brandt; WISCO Tailored Blanks GmbH

Serial Application of Tailored-Welded-Blanks in Hot Stamping

LUNCH

13:05 - 14:10 Restaurant SCHLOSSBERG

HOT STAMPING 4-7

Chair: Edward Schleichert

14:10 - 15:50

14:10 - 14:35

Hot Stamping 4

Kent Eriksson; AP&T

*Influencing Factors when Designing Production of
Complex Boron Steel Parts*

14:35 - 15:00

Hot Stamping 5

Representative from Schwartz GmbH

*Heating Technology and Furnace
Equipments for Hot Stamping Industry*

2013-09-19 THURSDAY

15:00 - 15:25

Hot Stamping 6

Johannes Bührlé*, M. Fritz;**

***TRUMPF Laser-und Systemtechnik GmbH**

****TRUMPF GmbH + Co. KG**

New trends in laser within the process chain of hotforming production

15:25 - 15:50

Hot Stamping 7

Stéphane Graff, Lutz Keßler;

ThyssenKrupp Steel Europe AG

The virtual hot and cold stamping process development needs an adequate material and process modeling design

COFFEE BREAK

15:50 - 16:20 Restaurant SCHLOSSBERG

TOOLS & MATERIALS I - 4

Chair: Max Brandt

16:20 - 18:00

16:20 - 16:45

Tools & Materials 1

Siegfried Gelder, Gerhard Jesner;

Böhler Edelstahl GmbH & Co. KG

Influence of physical and mechanical properties of tool steels for hot stamping applications

16:45 - 17:10

Tools & Materials 2

Dirk Haller, Florian Schmid;

Schuler Cartec Göppingen

*Lightweight Design Expertise for Press Hardening
Die technology, cooling and heat transmission
Schuler Process Technology*

17:10 - 17:35

Tools & Materials 3

**Isaac Valls, Anna Ingebrand, Ingrid Picas;
Roalma S.A.**

*New developments in High Thermal Conductivity Tool steels
for Press Hardening*

17:35 - 18:00

Tools & Materials 4

Evelin Ratte; Zapp Materials Engineering

PM-steels in sheet metal forming

MATERIAL & PROPERTIES I - 4

Chair: Wolfgang Weiß

16:20 - 18:00

16:20 - 16:45

Material & Properties I

**Michael P. Pereira, Matthias Weiss, Bernard F. Rolfe;
Institute for Frontier Materials, Deakin University**

Towards tool life prediction in sheet metal stamping

16:45 - 17:10

Material & Properties 2

**P. Oberhauser*, T. Grohmann*, P. Schulz*,
N. Sotirov**;**

***AMAG rolling GmbH, **AIT LKR**

*Performance of high strength AlZnMg(Cu) aluminium alloys
after W-temper and warm forming*

17:10 - 17:35

Material & Properties 3

Jingsi Jiao*, Joseba Mendiguren , Lander Galdos**,
Bernard Rolfe***, Matthias Weiss;**

***Deakin University Australia, **Mondragon Unibert-
sitatea, *** School of Engineering, Deakin University**

*The effect of process parameters on web-warping in the flexi-
ble roll forming of UHSS*

2013-09-19 THURSDAY

17:35 - 18:00

Material & Properties 4

Fuh-Kuo Chen*, Wei-Cheng Chou*, Heng-Kuang Tsai*, Shi-Wei Wang;**

*** National Taiwan University**

**** Steel & Iron Research & Development Department,
China Steel Corporation**

Distortion Analysis in the Stamping of an A-Pillar with Advanced High Strength Steel Sheets

BLUE HOUR

18:00 - 18:30 Restaurant SCHLOSSBERG

CONFERENCE BANQUET

19:30 - 22:00 Restaurant SCHLOSSBERG

KEYNOTE 3 - 5

Chair: Ralf Kolleck

09:00 - 11:15

09:00 - 09:45

Keynote 3

Prof. Marion Merklein; LFT Erlangen

Sheet-Bulk metal forming processes - State of the art and its perspective

09:45 - 10:30

Keynote 4

Gerald Zwickel; BILSTEIN GmbH & Co. KG

Application and Future Developments for Automotive Industry

10:30 - 11:15

Keynote 5

Prof. Taylan Altan; The Ohio State University

Current Applications of FE Simulation for Blanking and Stamping of Sheet Materials

COFFEE BREAK

11:15 - 11:45 Restaurant SCHLOSSBERG

HOT STAMPING 8 - 10

Chair: Dr. Evelin Ratte

11:45 - 13:00

11:45 - 12:10

Hot Stamping 8

Yuan-Chuan Hsu, Bo-Shian Wu;

National Formosa University

Deformation of the Bending and Forming of High-Strength Tailor-Welded Steel Blanks Using Hot Stamping

12:10 - 12:35

Hot Stamping 9

Wolfgang Weiß, Ralf Kolleck; TU Graz

Simulation of the Hot Forming Process under Consideration of the Thermal State of the Tools

12:35 - 13:00

Hot Stamping 10

V. Ploshikhin*, A. Prihodovsky*, J. Kaiser*,

L. Skutella*, T. Gerber, A. Schrooten**;**

*** Neue Materialien Bayreuth GmbH**

**** ThyssenKrupp Steel AG**

Contact heating - New heating technology for heat treatment and hot Forming

PROCESSES I - 3

Chair: David Lorenz

11:45 - 13:00

11:45 - 12:10

Processes 1

Tomoyoshi Maeno, Ken-ichiro Mori,

Takuya Suganami;

Toyohashi University of Technology

Semi-Punching in Hot Stamping of Ultra-High Strength Steel Parts

12:10 - 12:35

Processes 2

D. Lorenz¹, A. Haufe¹, M. Feucht²;

¹ DYNAmore GmbH, ² Daimler AG

The stamping to crash simulation process chain:

A study of damage parameters with regard to element size dependency in the crashworthiness prediction

12:35 - 13:00

Processes 3

**L.-Liang Wang^{ab}, Jianguo Lin^{ab}, O. El Fakir^b,
Alistair Foster^a, George Adam^a, John Sellors^c;**

^a **Impression Technologies Ltd**

^b **Department of Mechanical Engineering**

^c **Lotus Engineering**

HFQ forming: a novel lightweight sheet metal forming technology for mass-production

LUNCH

13:00 - 14:00 Restaurant SCHLOSSBERG

ADVANCED 1 - 5

Chair: Robert Vollmer

14:00 - 16:55

14:00 - 14:25

Advanced 1

**Alexander Paul^a, Norbert Pierschel^b, Christian Fäth^a,
Frank Schieck^a ;**

^a**Fraunhofer Institute for Machine Tools and
Forming Technology (IWU)**

^b**Technische Universität Chemnitz**

*Hydroforming and Press Hardening - Determination of the
Shape Accuracy at Complex Bended Tubes*

14:25 - 14:50

Advanced 2

Manuel Hunger; Schuler Automation

Laser Blanking Technology

14:50 - 15:15

Advanced 3

Siegfried Pießlinger-Schweiger; POLIGRAT GmbH

Higher Fatigue Resistance due to POLIGRAT-Processes

15:15 - 15:40

Advanced 4

**Guillaume Badinier, Jean-Denis Mithieux, Pierre-Oliver Santacreu, Jean-Marc Herbelin;
Aperam Research Center**

A martensitic stainless steel grade for making parts with tailored properties

15:40 - 16:05

Advanced 5

**Thomas Fröhlich;
Outokumpu Nirosta GmbH**

New Lightweight High Strength Austenitic Steels with Maximum Ductility and Excellent Crash Performance

MATERIALS & PROPERTIES 5 - 9

Chair: Christian Koroschetz

14:00 - 16:05

14:00 - 14:25

Material & Properties 5

B.T. Tang^{1,2}, S. Bruschi², A.Ghiotti², P.F. Bariani²;

¹ **Shandong Jianzhu University**

² **DII University of Padova**

Numerical and Experimental Investigation of the Phase Transformation Behaviour of 22MnB5 in the Tailored Tempering Process

14:25 - 14:50

Material & Properties 6

**Maria Doig; inpro
Kerim Isik, Celal Soyarslan; IUL Dortmund
Helmut Richter; ThyssenKrupp Steel Europe AG**

Towards ductile damage prediction of advanced high strength steels

14:50 - 15:15

Material & Properties 7

Kristof Bobor, György Krállics, Tareg B. Nasser;
Budapest University of Technology and Economics
Modeling of severe plastic deformation processes

15:15 - 15:40

Material & Properties 8

**T. Mennecart¹, H. ul Hassan¹, J. Fruth², T. Wagner³,
A. Güner¹, N. Ben Khalifa¹, A. E. Tekkaya¹;**
**¹Institute of Forming Technology and Lightweight
Construction**
²Faculty of Statistics
³Institute of Machining Technology
*Reduction of springback by use of deep drawing tools with
locally and temporally varying stiffness*

15:40 - 16:05

Material & Properties 9

Mathias Liewald, Ranko Radonjic;
**University of Stuttgart, Institute for Metal Forming
Technology (IFU)**
*Strategies for Springback Reduction and Compensation of
Advanced High Strength Steels in Forming Processes*

Closing Remarks and Farewell Coffee

16:05 - 16:30 Restaurant SCHLOSSBERG

SOCIAL PROGRAM

WELCOME RECEPTION

WEDNESDAY, SEPTEMBER 18, 2013

Attendees and guests are invited to start the TTP Conference on Wednesday evening with a welcome reception at the Institute Tools and Forming.

You are cordially invited to participate, and visit the grounds of the institute in the course of a pleasant evening.

Institute of Tools and Forming
Inffeldgasse 11/1
8010 Graz | Austria



SOCIAL PROGRAM

CONFERENCE BANQUET

THURSDAY, SEPTEMBER 19, 2013
(19:30 - 22:00)

Restaurant SCHLOSSBERG
Am Schlossberg 7
8010 Graz
Tel.: +43 (0) 316 84 00 00



The SCHLOSSBERG Restaurant is located on top of the Grazer local mountain at 464 meters. You will be able to enjoy a spectacular view over Graz and savour splendid regional dishes with international influence.



AP&T

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Schwartz GmbH

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Phone +49 2473 9488 81
Contact: Elke Müller,
E.Mueller@schwartz-wba.de

Magna Education & Research GmbH & Co KG

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Phone +43 2253 600 1004
Contact: Gabriele Hodits,
gabriele.hodits@magna-europe.com

Outokumpu Nirosta GmbH

Oberschlesienstraße 16
D-47807 Krefeld, Germany
Phone +49 2151 83 4904
Contact: Gert Weiß,
gert.weiss@outokumpu.com

ACCOMMODATION



Schlossberghotel - Das Kunsthotel

The Schlossberg Hotel is unique in its striking variety: contemporary art alongside fine antiques, a sincere welcome combined with professional service, historic flair and modern comfort. The individually designed rooms and suites are furnished with a select range of fine materials; lush green roof gardens with an outdoor swimming pool, sport and relaxation area, seminar rooms and a private underground parking garage.



**** Palais-Hotel Erzherzog Johann

Right in the heart of the historic centre by Hauptplatz square, for more than 150 years this traditional hotel has stood for style, cosiness and comfort. The flair of this Baroque palatial building is reflected in its 59 individually-appointed rooms and suites. The centrepiece of the building is, without doubt, the glass-roofed interior courtyard, which houses the freshly redesigned Winter Garden Café-Restaurant.



**** Das Weitzer

Ask where the best place to stay is in Graz, and you'll hear one answer: at the new Weitzer, where else! Assuming of course that you want to stay in a relaxed, friendly hotel. It also offers a central location and good value. And so much more besides: a sensational breakfast with the soothing ambience of the fountain, a fireside lounge bar, a flower island. Around the corner you'll find the „Der Steirer“ restaurant including the Vinofaktur wine boutique.

ACCOMMODATION



Hotel Wiesler

The new Wiesler proves it: a hotel isn't just a hotel. Here you can expect more than just a bed: breakfast in the nouveau "Frühling" [Spring] salon, grill & soul in the dining room, a real barber in the Wiesler Depot and, right next door, "Senf und Söhne" [Mustard & Co.] – an old-fashioned Austrian canteen. For relaxation there's the new wellness oasis. And all this in the middle of town. Altogether a different kind of hotel, for guests who don't necessarily prefer things standard.

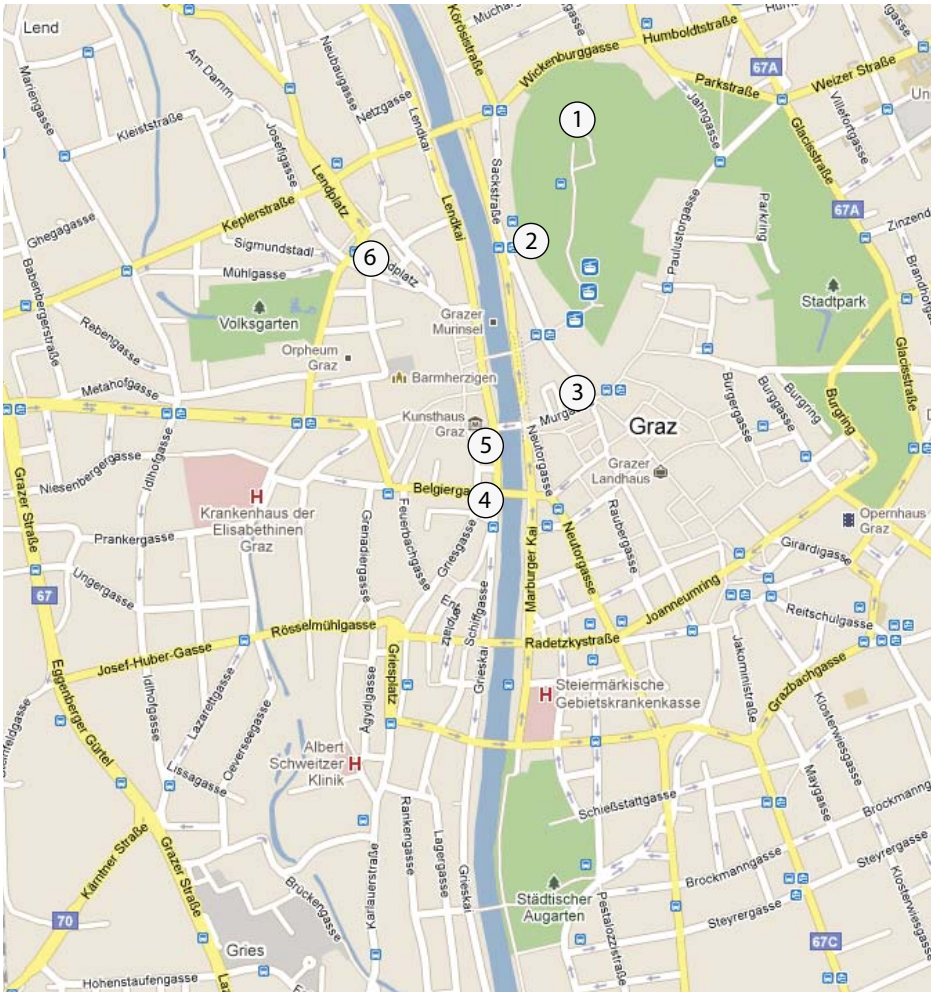


*** Gasthof Pension „Zur Steirerstub'n“

The centrally located Steirerstub'n offers a pleasant friendly stay: 27 rooms with shower/WC and sat-TV. Car parking spaces available! Great cuisine with home cooking and local Styrian specialities.

CITY MAP

01. CONFERENCE VENUE
SCHLOSSBERG
Am Schlossberg 7, 8010 Graz
02. SCHLOSSBERGHOTEL – DAS KUNSTHOTEL
Kaiser-Franz-Josef-Kai 30, 8010 Graz
03. **** PALAIS-HOTEL ERZHERZOG JOHANN
Sackstraße 3-5, 8010 Graz
04. DAS WEITZER****
Grieskai 12-16, 8020 Graz
05. HOTEL WIESLER
Grieskai 4-8, 8020 Graz
- 06: *** GASTHOF PENSION „ZUR STEIRERSTUB'N“
Lendplatz 8, 8020 Graz



CONFERENCE ORGANIZER
Univ.-Prof. Dr.-Ing. Ralf Kolleck
Head of the Tools and Forming Institute

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[FSI]

