



2011

**3<sup>rd</sup>**  
**INTERNATIONAL CONFERENCE**

**on Hot Sheet Metal Forming  
of High-Performance Steel**



**FINAL PROGRAM**

**June 13<sup>th</sup> to 17<sup>th</sup> 2011 – Kassel, Germany**

**U N I K A S S E L  
V E R S I T Ä T**

## SCOPE

The third international conference on hot sheet metal forming of high-performance steel – also known as press hardening or hot stamping – will be held in Kassel, Germany. The demand for hot sheet metal forming technology has steadily increased and, pulled by strong international driving forces such as environment and safety, we are now experiencing an unprecedented growth in automotive applications. The

research concerning hot forming processes, micro-structure evolution, deformation, failure, thermal properties and issues such as coatings, heat transfer, high temperature tribology and functional gradation is intense and a strong research community is under development. This third international conference takes off from where the first two conferences in Kassel 2008 and Luleå 2009 were closed. The scientific

and industrial community will be further strengthened and new results and developments from the growing international research programs will be displayed. The conference program highlights multiple aspects from a scientific as well as an industrial viewpoint. The City of Kassel welcomes all participants to a town called „Capital of the German Fairy Tale Route“ where art and nature are equally important.

Magnificent parks, internationally renowned art treasures and cultural institutions invite millions of visitors every year to this attractive city. Kassel, situated in the heart of Germany, is easily accessible by train or car and located only 200km from the Frankfurt International Airport.

Kurt Steinhoff,  
Mats Oldenburg,  
Braham Prakash



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- Dr. **Dirk Stahl** (Kirchhoff Automotive GmbH, GER)
- **Isaac Valls-Angles** (Royalma S.A., ESP)
- Dr. **Wico Verloop** (Tata Steel, NL)

## CONFERENCE FEE

Early registration until 31 <sup>st</sup> of March 2011:	825.00 Euro
Regular registration from 1 <sup>st</sup> of April 2011:	915.00 Euro
Presenting authors & board members:	530.00 Euro

The conference fee includes the participation in the lectures, exhibition and the social events as well as the proceedings.

Accompanying persons:	295.00 Euro
Technical Tour:	126.00 Euro
Online registration is available. Please refer to <a href="http://www.chs2.eu">www.chs2.eu</a> .	

## SUPPORTED BY

AP&T Automation, Pressen & Werkzeuge Vertriebs-GmbH, GER  
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## ORGANIZED BY

University of Kassel, Chair of Metal Forming Technology, Germany  
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## NETWORK



# VENUE

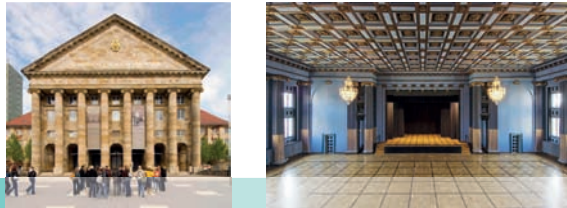
JUNE 13<sup>th</sup>

## Kongress Palais Kassel – Stadthalle

Holger-Börner-Platz 1  
34119 Kassel, Germany

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fax: +49 (0)561 7882 218  
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18:00 Early Registration (Ramada Hotel)

19:00 Welcome Reception (Gartensaal, Ramada Hotel)



## ACCOMMODATION

### Recommended Hotels:

Aukam's La Strada  
Raiffeisenstrasse 10 | 34121 Kassel  
fon: +49 (0)561 2090-0  
fax: +49 (0)561 2090-500  
email: info@lastrada.de

Ramada Hotel Kassel City Centre  
Baumbachstraße 2/Stadthalle | 34119 Kassel  
fon: +49 (0)561 7810-0  
fax: +49 (0)561 7810-100  
email: kassel@ramada.de

09:15	Opening Session / Welcome Notes	
09:30	<b>Chances and Challenges for Small and Medium-sized Enterprises in a Rapidly Growing Market</b> Hans Eichel, German Federal Minister of Finance ret'd., GER	
09:40	<b>Press Hardening – Chances and Changes</b> Dr. Armin Plath, MBA, MSc, Head of Materials Research and Manufacturing Processes, Group Research, Volkswagen AG, Wolfsburg, GER	
10:00	Refreshment Break	
	Conference Room A: Blauer Saal (Blue Room) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 24px;">A</div>	Conference Room B: Gesellschaftssaal (Function Hall) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 24px;">B</div>
10:45	<b>Tailored Properties I</b> CHAIRMAN: Taylan Altan (Ohio State University, USA) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">A1</div>	<b>Materials Testing &amp; Failure Prediction</b> CHAIRMAN: Daniel Casellas (CTM Centre Tecnològic, ESP) <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">B1</div>
10:45	<b>Tailored Properties – A Pivotal Question for Hot Forming</b> Banik, J.; Lenze, F.J.; Sikora, S.; Laurenz, R. (ThyssenKrupp Steel Europe AG, Dortmund, GER)	<b>Failure Model Evaluation for Varying Micro-structure Based on Material Hardness</b> Östlund, R.; Oldenburg, M.; Häggblad, H.-Å. (Division of Solid Mechanics, Luleå University of Technology, SWE); Berglund, D. (Gestamp R&D, Luleå, SWE)
11:10	<b>Tailored Tempering – Heat Transfer and Resulting Properties in Dependency of Tool Temperatures</b> Svec, T.; Merklein, M. (Chair of Manufacturing Technology, University Erlangen-Nuremberg, GER)	<b>Local Characterization of Mechanical Properties of Hot Formed Parts</b> Maikranz-Valentin, M. (METAKUS GmbH, Baunatal, GER); Clobes, J.; Alsmann, M. (Development & Innovation, Volkswagen AG, Baunatal, GER); Schulz, M. (Technology-Management, Volkswagen AG, Wolfsburg, GER); Kulp, S. (Strukturplanung, Volkswagen AG, Wolfsburg, GER); Steinhoff, K. (Chair of Metal Forming Technology, University of Kassel, GER)

11:35	<b>Hot Forming of a Lab-Scale B-Pillar with Tailored Properties – Experiment and Modeling</b> George, R.; Bardelcik, A.; Worswick, M.J. (University of Waterloo, Ontario, CAN)	<b>Numerical Prediction of Failure in High Temperature Formblowing and Hardening</b> Lindkvist, G.; Häggblad, H.-Å.; Oldenburg, M. (Division of Solid Mechanics, Luleå University of Technology, SWE)
12:00	Lunch	
13:30	<b>Tools &amp; Dies</b> <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">A2</div> CHAIRMAN: Edward Schleichert (Magna Automotive Services GmbH, GER)	<b>Flow Behaviour &amp; Formability</b> <div style="float: right; background-color: red; color: white; padding: 5px; font-weight: bold; font-size: 18px;">B2</div> CHAIRMAN: Marion Merklein (University of Erlangen-Nuremberg, GER)
13:30	<b>Integrated and Competitive Tooling Solutions for the Production of Tailored Components and Cutting of UHSS</b> Ingebrand, A.; Valls Anglès, I.; Laumann, T. (Roivalma, S. A., Terrassa, ESP)	<b>Draw-Bending Formability of Steel Sheets in Hot Stamping Process</b> Kusumi, K.; Nomura, N.; Yamamoto, S.; Suehiro, M. (Steel Research Laboratories, Technical Development Bureau, Nippon Steel Corporation, Chiba, JPN)
13:55	<b>The Effect of Die Constructions on the Formability of Hot Stamped Automobile Parts</b> Ha, S.Y.; Seo, P.K. (Shinyoung Co., Ltd., Yeongcheon-City, Korea); Kim, B.M.; Kang, C.G. (School of Mechanical Engineering, Pusan National University, Pusan, Korea)	<b>Investigations on the Flow Behavior of Boron-Manganese Steels at Elevated Strain Rates</b> Stoehr, T.; Merklein, M. (Chair of Manufacturing Technology, University Erlangen-Nuremberg, GER)
14:20	<b>Effect of the Cutting Process in the Mechanical and Fatigue Properties of Press Hardened 22MnB5 Steel</b> Picas, I.; Muñoz, R.; Lara, A.; Hernández, R.; Casellas, D. (Department of Materials Technology, CTM Technological Centre, Manresa, ESP)	<b>Stretch-Flange Formability of Boron Steel in Hot Stamping</b> Nakata, M.; Ito, Y.; Uematsu, K.; Hikita, K.; Suzuki, T.; Kojima, N. (Corporate R&D Labs., Sumitomo Metal Industries Ltd., JPN)
14:45	<b>Investigations into the Failure Mechanisms of Form Fixture Hardening Tools</b> Pelcastre, L.; Hardell, J.; Herrera, N.; Prakash, B. (Luleå University of Technology, Department of Applied Physics and Mechanical Engineering, SWE)	<b>Study of Influence of Forming Velocity and Friction Coefficient on Formability of Hot Stamping by FEM Simulation</b> Nomura, N.; Kusumi, K.; Suehiro, M. (Steel Research Laboratories, Technical Development Bureau, Nippon Steel Corporation, Chiba, JPN)
15:10	Refreshment Break	



JUNE 14<sup>th</sup>



JUNE 15<sup>th</sup>

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15:40	<b>Coatings &amp; Corrosion I</b> CHAIRMAN: Kazuhisa Kusumi (Nippon Steel Corporation, JPN)	<b>A3</b>	<b>Industrial Applications I</b> CHAIRMAN: Fabian Loges (IOG Industrieofenbau GmbH, GER)	<b>B3</b>
15:40	<b>Zinc-Coated Boron Steel, ZnX<sup>®</sup>: Direct Hot Forming for Automotive Applications</b> van Genderen, M. J.; Verloop, W. C. (Tata Steel Strip Products, IJmuiden, NED); Loiseaux, J.; Hensen, G. C. (Tata Steel Research Development & Technology, IJmuiden, NED)		<b>Developments in the Field of Schwartz Heat Treatment Furnaces for Press Hardening Industry</b> Lehmann, H. (Schwartz GmbH, Simmerath, GER)	
16:05	<b>Corrosion Resistance of Zinc Based and Aluminized Coatings on Press-Hardened Steels for Automotive</b> Allély, C.; Petitjean, J. (ArcelorMittal Global Research and Development, Maizières-les-Metz, FRA); Vietoris, T. (ArcelorMittal Global Research and Development, Berlin, GER)		<b>Compact Line Conception for Hot Forming Lines</b> Gamboa, E.; Agirretxe, X.; Martin, J. M.; Gorostiza, K. (HOTTEKNIK, Amorebieta, ESP)	
16:30	<b>A Ductile Aluminide Coating for Hot Stamping</b> Fan, D. W.; De Cooman, B. C. (Graduate Institute of Ferrous Technology, Pohang University of Science and Technology, KOR)		<b>Continuous Improvement of Hot Forming Technology</b> Hund, R. (BRAUN-CarTec GmbH, Schwalbach, GER)	
16:55	<b>End of Day 1</b>			
20:00	<b>Conference Banquet</b>			

	<b>Conference Room A: Blauer Saal (Blue Room)</b>	<b>A</b>	<b>Conference Room B: Gesellschaftssaal (Function Hall)</b>	<b>B</b>
09:00	<b>Tailored Properties II</b> CHAIRMAN: Markus Pfestorf (BMW Group, GER)	<b>A4</b>	<b>Industrial Applications II</b> CHAIRMAN: Ralf Hund (BRAUN CarTec GmbH, GER)	<b>B4</b>
09:00	<b>Tool Thermal Cycle Design for Manufacturing of Components with Tailored Material Properties</b> Oldenburg, M.; Lindkvist, G. (Department of Applied Physics and Mechanical Engineering, Luleå University of Technology, SWE)		<b>Process Optimization of Laser Cutting and in the Heating Process</b> Fritz, M. (Industry Management Automotive, Hotforming, TRUMPF Laser und Systemtechnik, GER)	
09:25	<b>Numerical Optimization of Temporally and Spatially Varying Temperature Distributions for the Production of Functionally Graded Materials with Tailored Microstructural Properties</b> Clobes, J.; Alsmann, M.; Watermeier, H.-J.; Becker, H.-H. (Volkswagen AG, Baunatal, GER); Fuß, D.; Steinhoff, K. (University of Kassel, Chair of Metal Forming Technology, GER)		<b>HotPHASE – Press Hardening Automotive Solutions by EBNER</b> Ebner, F. J. (Ebner Industrieofenbau GmbH, Leonding, AUT)	
09:50	<b>An Impact Model of a Hot Stamped Lab-Scale B-Pillar with Tailored Properties</b> Bardelcik, A.; Ghavam, K.; George, R.; Worswick, M. J. (Department of Mechanical and Mechatronics Engineering, University of Waterloo, Ontario, CAN)		<b>Past and Future for Taylor-Made Hot Stamping Lines</b> Berasategi, J. M.; Garbalena, C.; Irazu, G. (Loire Safe, Hernani, ESP); González, B. (Tecnalia, Derio, ESP)	



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10:15	<b>Enhancement of Process Stability and Part Quality for the Press Hardening of Sheet Metal</b> Neugebauer, R.; Göschel, A.; Schieck, F. (Fraunhofer-Institute for Machine Tools and Forming Technology IWU, Chemnitz, GER); Rautenstrauch, A.; Mosel, A.; Cai, H. (Chemnitz University of Technology, Professorship for Machine Tools and Forming Technology, GER)	<b>Press Hardening – Process Design</b> Eriksson, K. (AP&T Advanced Automation)
10:40	<b>Refreshment Break</b>	
11:10	<b>Case Studies I</b> <span style="background-color: red; color: white; padding: 2px;">A5</span> CHAIRMAN: Martin Jonsson (Gestamp HardTech AB, SWE)	<b>Parts &amp; Processes I</b> <span style="background-color: red; color: white; padding: 2px;">B5</span> CHAIRMAN: Franz-Josef Lenze (ThyssenKrupp Steel Europe AG, GER)
11:10	<b>Market Development and Technological Perspectives in Press Hardening of UHSS</b> Schupfer, M.; Steinhoff, K. (Chair of Metal Forming Technology, University of Kassel, GER)	<b>Experimental Estimation of Heat Transfer Coefficients in the Hot Stamping Process of Usibor®1500P</b> Dessain, C.; Wilsius, J.; Brun, G. (ArcelorMittal Global Research and Development, Montataire, FRA); Abdulhay, B.; Bourouga, B. (Laboratoire de Thermocinétique de Nantes, Nantes Cedex, FRA)
11:35	<b>Extensive Use of Hot-Formed Steel in Car Body Structures</b> Johansson, R.; Fermér, M.; Jergéus, J.; Larsson, J.K. (Volvo Car Corporation Advanced Body & Exterior Engineering, Gothenburg, SWE)	<b>Process Development for Manufacture of an Automotive Structural Part by means of Applasting Technology</b> Vadillo, L.; Zarazua, J.I.; Pérez, I.; Varela, S.; San José, J. (Tecnalia Research & Innovation, Derio, ESP); Yamamoto, D. (Honda Engineering Europe Ltd., Swindon, GBR); Hori, I. (Honda Engineering Co. Ltd., Hagan, JPN); Berlanga, R. (Metalsa, S. A. de C. V., Apodaca, MEX)
12:00	<b>Lunch</b>	

13:30	<b>Modeling &amp; Simulation</b> <span style="background-color: red; color: white; padding: 2px;">A6</span> CHAIRMAN: Ma Dolors Riera Colom (CTM Centre Tecnològic, ESP)	<b>Friction &amp; Wear &amp; Lubrication</b> <span style="background-color: red; color: white; padding: 2px;">B6</span> CHAIRMAN: Andreas Reiter (OC Oerlikon Balzers AG, LIE)
13:30	<b>Progress on the Finite Element Simulation of the Hot Stamping Process</b> Naganathan, A.; Sartkulvanich, P.; Ravindran, D.; Pierschel, N.; Altan, T. (Center for Precision Forming, The Ohio State University, Columbus, USA)	<b>Application of Lubricant in Hot Stamping of Aluminum Coated High Strength Steel</b> Azushima, A.; Yanagida, A. (Department of Mechanical Engineering, Graduate School of Engineering, Yokohama National University, Kanagawa, JPN); Uda, K. (Research & Development Department, Daido Chemical Industry Co., Ltd. Nara, JPN)
13:55	<b>About the Simulation of Microstructure Evolution in the Hot Sheet Stamping Process and the Correlation of Resulting Mechanical Properties and Crash-Performance</b> Graff, S.; Lenze, F.-J.; Sikora, S. (Research and Development, FuE-A Forming Technology, ThyssenKrupp Steel Europe AG, Duisburg, GER); Gerber, T. (Research and Development, FuE-E Conventional Steel, ThyssenKrupp Steel Europe AG, Duisburg, GER)	<b>Wear Behavior of Uncoated and Coated Tools with Respect to Different Loading Conditions</b> Wieland, M.; Merklein, M. (Chair of Manufacturing Technology, University Erlangen-Nuremberg, GER)
14:20	<b>Research on Tailored Microstructure Material in Hot Forming and its Application</b> Ma, N.; Hu, P. (State Key Laboratory of Structural Analysis for Industrial Equipment, School of Automotive Engineering, Dalian University of Technology, CHN); Zhang, Z. (Shanghai Institute of Satellite Engineering, Shanghai, Dalian, CHN)	<b>Effect of Surface Roughness of Die and Scale Thickness on Coefficient of Friction of Boron Alloyed Quenchable Steel in Hot Stamping</b> Yanagida, A.; Tanaka, Y.; Azushima, A. (Department of Mechanical Engineering, Graduate School of Engineering, Yokohama National University, JPN)

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14:45	<b>Formability Simulation or Cooling Simulation – or both?</b> Skrikerud, M.; Köser, O.; Megahead, M. (ESI Group, SUI/GER)	<b>Wear Mechanism Identification on Hot Stamping Tools</b> Pujante, J.; Vilaseca, M.; Casellas, D. (Department of Materials Technology, CTM Technological Centre, Manresa, ESP); Eriksson, K. (Research & Development, Gestamp HardTech AB, Luleå, SWE); Clobes, J.; Alsmann, M. (Development & Innovation, Volkswagen AG, Baunatal, GER)
15:10	<b>Refreshment Break</b>	
15:40	<b>Case Studies II</b> CHAIRMAN: Kaj Fredin (Volvo Car Cooperation, SWE)	<b>Parts &amp; Processes II</b> CHAIRMAN: Per Hansson (SSAB AB, SWE)
15:40	<b>Development of Structural Components in Indian Automotive Industry through Hot Forming</b> Kumar, D. (KLT Automotive & Tubular Products Ltd., Pune, IND)	<b>Novel Approach of Thermo-Mechanical Forming Technology for Development of Multi-Laminated Composite Parts</b> Barbakadze, N.; Wagner, S.; Weidig, U.; Steinhoff, K. (Chair of Metal Forming Technology, University of Kassel, GER); Ademaj, A. (METAKUS GmbH, Baunatal, GER)
16:05	<b>Humans Love Progress but Hate Change – from Vision to Reality</b> Scheurer, S. (GRUNDIG AKADEMIE, Academy for Business and Technology non-profit Foundation e.V., Nuremberg, GER)	<b>New Applications of Press Hardening Technology: Skin Outer Parts</b> García, I.; Redondo, M.; Zarauzua, J. I.; Fernández, B. (DieDe Die Development S. L., Derio, ESP)
16:30	<b>End of Day 2</b>	
18:00	<b>Evening Event: “Exploring the Countryside of Kassel”</b>	



	<b>Conference Room A: Blauer Saal (Blue Room)</b>	<b>A</b>	<b>Conference Room B: Gesellschaftssaal (Function Hall)</b>	<b>B</b>
09:00	<b>Tailored Properties III</b> CHAIRMAN: Dirk Stahl (Kirchhoff Automotive GmbH, GER)	<b>A8</b>	<b>Heating &amp; Cooling</b> CHAIRMAN: Reiner Kelsch (voestalpine Polynorm GmbH & Co. KG, GER)	<b>B8</b>
09:00	<b>Invited Presentation: Press Hardening Technology Developments and Research Challenges</b> Jonsson, M. (Gestamp HardTech AB, Luleå, SWE)		<b>Influence of Different Heating Technologies on the Coating Properties of Hot-Dip Aluminized 22MnB5</b> Siebert, P.; Alsmann, M.; Watermeier, H.-J. (Research and Development Press-Shop, Volkswagen AG, Baunatal, GER)	
09:25	<b>Experimental and Numerical Investigation of Various Hot Stamped B-Pillar Concepts Based on Usibor®1500P</b> Wilsius J.; Tavernier B.; Abou-Khalil D. (ArcelorMittal R&D Automotive Applications, Montataire Cedex, FRA)		<b>Effect of Rapid Heating on Evolution of Microstructures and Coating Layers in Hot Stamping Processes</b> Senuma, T.; Takemoto, Y. (Graduate School for Nature Science, Okayama University, JPN)	
09:50	<b>Tailor Strategies in Press Hardening</b> Fernández, B.; Zarate, J.; García, I. (DieDe Die Development S. L., Derio, ESP); Varela, S. (Tecnalia R&D, Derio, ESP)		<b>Fluidized Bed Heating of Blanks for the Hot Forming Process</b> Marten, T.; Tröster, T. (University of Paderborn, GER); Adelbert, S. (Benteler Automobiltechnik GmbH, Paderborn, GER); Kadim, A. (Schwing Fluid Technik GmbH, Neukirchen-Vluyn, GER)	
10:15	<b>A Thermo-Mechanical-Metallurgical FE Approach for Simulation of Tailored Tempering</b> Ertürk, S.; Sester, M.; Selig, M. (AutoForm Development GmbH, Zurich, SUI); Feuser, P.; Roll, K. (Daimler AG, Sindelfingen, GER)		<b>Induction Heat Treatment for Press Hardening Process</b> Schülbe, H.; Jestremski, M.; Nacke, B. (Institute of Electrotechnology, Leibniz University of Hanover, GER)	
10:40	<b>Refreshment Break</b>			

JUNE 16<sup>th</sup>



JUNE 17<sup>th</sup>

JUNE 17<sup>th</sup>

11:10	<b>Coatings &amp; Corrosion II</b> CHAIRMAN: Kiyoyuki Fukui (Sumitomo Metal Industries, JPN)	<b>A9</b>	<b>Microstructure &amp; Phase Transformation</b> CHAIRMAN: Wico Verloop (TataSteel, NL)	<b>B9</b>
11:10	<b>Trends and Developments in the Usability and Production of Press-Hardened Components with Cathodic Corrosion Protection</b> Kurz, T.; Rosner, M.; Manzenreiter, T. (voestalpine Stahl GmbH, AUT); Hartmann, D.; Sommer, A.; Kelsch, R. (voestalpine Polynorm GmbH & Co.KG, Schwäbisch-Gmünd, GER); Ademaj, A. (METAKUS GmbH, Baunatal, GER)		<b>Metallurgical Behaviour of Uncoated and Galvannealed Boron Steels in Hot Stamping Process</b> Kojima, N.; Nishibata, T.; Imai, K.; Akioka, K.; Hikita, K.; Hayashi, K. (Corporate R&D, Sumitomo Metal Industries, Amagasaki, JPN); Kikuchi, H. (Kashima Steel Works, Sumitomo Metal Industries; Kashima, JPN)	
11:35	<b>Effect of Heating Condition and Hot Forming on Corrosion Resistance of Hot Stamped Aluminized Steels</b> Maki, J.; Kurosaki, M.; Kusumi, K.; Abe, M. (Nippon Steel Corp., Tobata-ku Kitakyusyu, JPN)		<b>Bainitic Transformation under Compressive Stress in Low Alloy 51 CrV 4 Steel</b> Holzweißig, M. J.; Lambers, H.-G.; Maier, H. J. (Department of Material Science, University of Paderborn, GER)	
12:00	<b>Closing Session / Closing Remarks</b>			
12:30	<b>Lunch</b>			
14:00	<b>End of Conference</b>			

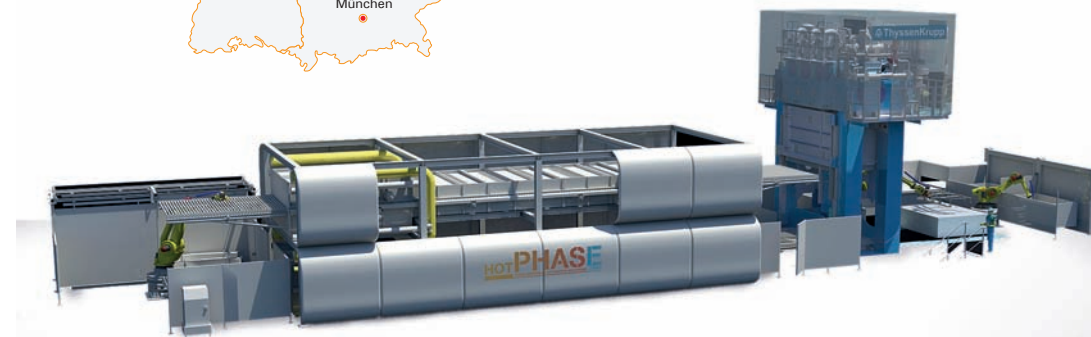
## TECHNICAL TOUR

Visiting the most advanced press hardening production at HFS Hot Forming Solutions GmbH | Hauptstraße 421 66773 Schwalbach, Germany >>> [www.hot-forming-solutions.com](http://www.hot-forming-solutions.com)

The technical tour is organized by IOG. For more information about the program, please refer to: >>> [www.iog.de/chs2](http://www.iog.de/chs2)



2<sup>nd</sup> International Conference in Luleå, Sweden, 2009



## CONFERENCE SECRETARY

Dennis Fuss  
Chair of Metal Forming Technology  
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More information on registration:  
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