11th Global Conference on Sustainable Manufacturing

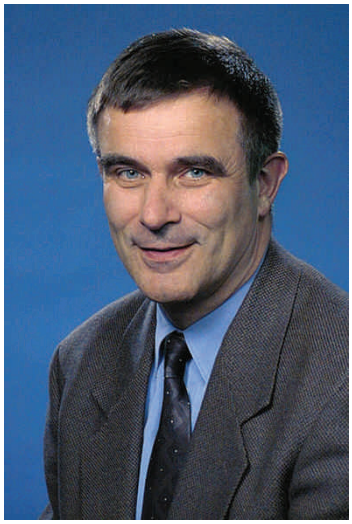
Innovative Solutions

Berlin, Germany
23rd - 25th September, 2013

Programme

Contents

Welcome



Sustainable manufacturing has emerged as the leading paradigm to address the dilemma of maintaining a progressive economic growth based on production of goods and services without continuing to damage our environment or future economic and social structures. While manufacturing is a major driver of civilized development that provides high quality living standards, its impact can be harmful if not managed and minimized, e.g. it may cause damage such as depletion of natural resources, global warming and toxic wastes.

On 23rd-25th September 2013, the Global Conference on Sustainable Manufacturing (GCSM, www.gcsm.eu) is expected to attract representatives from science and industry from all over the world to the conference chair's scientific home town Berlin, Germany. Sponsored by the International Academy for Production Engineering (CIRP), it will be the 11th conference in the GCSM tradition, which has already been held in Istanbul, St. Petersburg, Abu Dhabi and Madras among other places. In 2013 it will be hosted by Technische Universität Berlin. The conference serves as a forum for international research institutes and industrial companies related to the area of sustainable manufacturing. It offers keynote speeches, panel discussions and parallel sessions. Your participation, through the submission of your full paper will be appreciated.

The Collaborative Research Centre "Sustainable Manufacturing – Shaping Global Value Creation" explores how the dynamics of global competition and cooperation can be utilized for lending wings to processes of innovation and mediation towards the reasonably demanded sustainability of our globe. Funded by the German Research Foundation (DFG), 50 international researchers from eleven different institutes located in Berlin, investigate strategies, technological solutions and teaching approaches for sustainable global value creation. The most promising results of this major interdisciplinary project will be presented at the 11th Global Conference on Sustainable Manufacturing (GCSM).

A special highlight awaits our guests on the third conference day, when the GCSM overlaps with the industry-oriented PTK 2013 Conference (www.efficient-factories.com), which will provide in-depth technological answers to many of the questions raised more generally at the GCSM. After a day of joint scientific exchange, the "Berlin Night", a cultural event in the test field of the Production Technology Centre Berlin, will provide further opportunity for detailed discussions between the participants of both conferences. We are especially looking forward to welcome you to the "land of innovations" for the 11th GCSM. If industrial production can steer sustainable development, innovation is the engine behind it.

Best regards,
Prof. Dr.-Ing. Günther Seliger
Chairmen

Acknowledgements

The Organizing Committee wishes to thank the International Academy for Production Engineering CIRP for their contributions to the preperation of the 11th Global Conference on Sustainable Manufacturing in Berlin, Germany.

Our sincere thanks for all assistance in organizing the 11th Global Conference on Sustainable Manufacturing also goes to:

CRC 1026 - Sustainable Manufacturing

Technische Universität Berlin and Institut für Werkzeugmaschinen und Fabrikbetrieb

Fraunhofer IPK

Fraunhofer Institute for Production Systems and Design Technology

Global Production Engineering

German Research Foundation

Chairman

Prof. Dr.-Ing. Günther Seliger
Department of Machine Tools and Factory Management
Berlin Institute of Technology

Scientific Committee

Prof. E. Abele	Technische Universität Darmstadt, GER
Prof. K. Bouzakis	Aristoteles University of Thessaloniki, GRE
Prof. J. Duflou	Katholieke Universiteit Leuven, BE
Prof. S. Evans	University of Cambridge, UK
Prof. M. Finkbeiner	Technische Universität Berlin, GER
Prof. M. Hauschild	Technical University of Denmark, DEN
Prof. C. Herrmann	Technische Universität Braunschweig, GER
Prof. I.S. Jawahir	University of Kentucky, USA
Assoc. Prof. S. Kara	The University of New South Wales, AUS
Prof. M. Khraisheh	Masdar Institute of S. and Techn., UAE
Prof. T. Kristoffer Lien	Norwegian University of S. and Techn., NOR
Prof. N. Nasr	Rochester Institute of Technology, USA
Prof. H. Rozenfeld	Universidade de São Paulo, BRA
Prof. S. Takata	Waseda University, JP
Prof. R. Stark	Technische Universität Berlin, GER
Prof. F. Straube	Technische Universität Berlin, GER
Prof. M. M. Tseng	Hong Kong Univ. of S. and Tech., CN
Prof. R. Wertheim	Chemnitz University of Technology, GER

© TU Berlin/Pressestelle/Dahl

The 11th Global Conference on Sustainable Manufacturing (GCSM) will take place at the Production Technology Centre (PTZ) in Berlin. The center combines the competencies of both the Institute for Machine Tools and Factory Management of TU Berlin IWF as well as the Fraunhofer-Institute for Production Systems and Design Technology IPK. The Production Technology Centre is located in the heart of the old Berlin industrial area at the Charlottenburg embankment of the river Spree. The PTZ offers comprehensive and application oriented system solutions covering Virtual Product Creation, Production, Assembly and Automation Technology as well as Corporate Management. In order to solve the 21st century's major sustainability challenges, the Institutes' activities are progressively expanding into relevant emerging areas, e.g. renewable energy supply, resource cycle oriented technology and circular economy. Those efforts sum up in the Collaborative Research Centre "Sustainable Manufacturing – Shaping Global Value Creation", supported by the German Research Foundation (DFG).

The institutes not only provide state of the art technical facilities but also house enough room for events, presentations and speeches. Its multi-cultural and passionate team is looking forward to welcoming you in Berlin and showing you around.

The conference venue is located at Pascalstraße 8-9, 10587 Berlin

GCSM Secretariat

The possibility to register will be available on the 22nd of September in the Foyer of the PTZ. During the conference an information and registration desk will be available on the ground level at the coffee break.

The opening hours during the conference

Monday, 23rd of September	08:00 – 18:00
Tuesday, 24th of September	08:00 – 18:00
Wednesday, 25th of September	08:00 – 15:00

Conference Badges

Badges will be available at the conference desk in the foyer on Sunday the 22nd of September as well as Monday the 23rd of September. The Badges feature the participants name, organization and country.
Only persons wearing a “GCSM 2013” badge are entitled to attend the meetings, lunches, coffee breakes as well as the evening programs.

Conference Material

Upon arrival and registration all participants will receive a GCSM conference bag including several information and publications. Next to this information every participant will receive the following:

- Abstract Book featuring all abstracts
- A CD included in the back of the abstract book featuring all full papers
- Berlin WelcomeCard with BVG Ticket (72h and AB)
- A Notebook
- Wooden Pen
- WiFi – Network Key/Password
- Information material Produktionstechnisches Kolloquium 2013 (PTZ)

Lunches and Coffee Breakes

Lunch for the conference delegates will be served at our testfield within the PTZ. The testfield can be reached from the foyer. Coffee breakes will take place in the foyer of the conference venue (PTZ). Please check the schedule for lunches and coffee breakes in our conference program.

Preparing for your Presentation

Each session room is equipped with a projector and a laptop. Speakers are requested to upload their presentations to the room’s laptop in due time before their session starts. Personal laptops may also be used. The laptops provided are equipped with Microsoft Windows 7, Office 2010 (PowerPoint, Excel, Word), Adobe Reader, Windows Media Player and VLC Video Player. Technical assistance is provided in the meeting rooms.To prepare your presentation you will be able to use room 307 in the PTZ. It is on the 3rd floor of the PTZ building and is signposted but not equipped with PC’s.

WelcomeCard

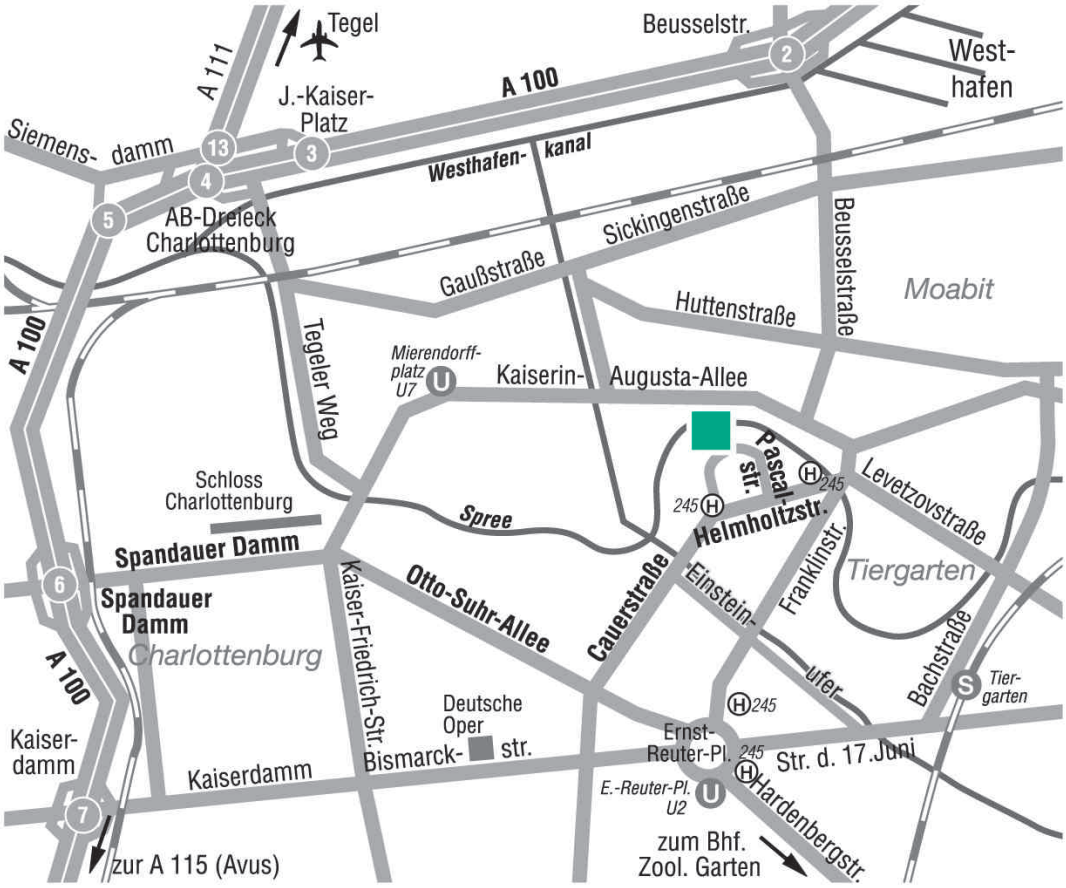
The conference material includes a Berlin WelcomeCard. The Berlin WelcomeCard is the official tourist pass of Berlin. It includes free travel on all public transport for 72 hours (AB zone) from the time of validation. It also includes a detailed map of Berlin as well as further information about sightseeing spots and restaurants. For more information about the WelcomeCard visit http://www.visitberlin.de/en/welcomecard

Insurance and Emergencies

The Organizers of the General Assembly do not provide insurance and do not take responsibility for any loss, accident or illness that might occur during the conference or in the course of travel to and/or from the meeting site. It is, therefore, the responsibility of the participants to check their coverage with their insurance provider.

Emergency telephone numbers
Police: **110**
Ambulance / Fire brigade: **112**

All pharmacies in Berlin digitally display the address of the nearest 24-hour pharmacy in their window. 24-hour pharmacy and medication helpline: Tel.: 01189



© Fraunhofer IPK

How to get there

From Berlin Main Station (Train):
Take bus 245 from bus stop »Lehrter Straße/Invalidenstraße« direction S+U Zoologischer Garten to bus stop »Franklinstraße«; travelling time about 20 minutes. Follow road for 200 m and turn right into Pascalstraße (ca. 5 min.).

Airplane

Berlin Tegel

Take bus X9 direction S+U Zoologischer Garten to bus stop »U Ernst-Reuter-Platz«. Then switch to bus 245, direction Nordbahnhof, to bus stop »Helmholtzstraße«. Follow road for 200 m and turn left into Pascalstraße (ca. 5 min.).

Berlin Schönefeld

– by taxi (40 min.)

– take regional train RE7 (direction Dessau) to main station, or take S9 to Ostkreuz, change there to S5, S7 or S75 to main station. From there, take bus 245 from bus stop »Lehrter Straße/Invalidenstraße« direction S+U Zoologischer Garten to bus stop »Franklinstraße«; travelling time about 20 minutes. Follow road for 200 m and turn right into Pascalstraße (ca. 5 min.).

To search for a connection just enter Pascalstraße 8, 10587 Berlin as your destination.

Arriving by Car

When travelling to us by car, please take note of the regulations concerning the Berlin environmental protection zone. This zone comprises the area within the S-Bahn ring. In this zone, only cars meeting certain exhaust standards are allowed to drive. Vehicles with a high exhaust level are not allowed to enter the zone.

Arriving from direction Hamburg, Rostock
– A 111 to Charlottenburg (A 100); A 100 to exit Spandauer Damm, turn left onto Spandauer Damm, which further down bends right and is then called Otto-Suhr-Allee. Turn left into Cauerstraße. Further down the road is called Dovestraße, then Helmholtzstraße. Turn left into Morsestraße, which further down is called Pascalstraße.

Arriving from direction Hannover, Leipzig, Nürnberg
– A 111 to Charlottenburg (A 100); A 100 to exit Kaiserdamm, then B2 towards Tiergarten (Kaiserdamm, then Bismarckstraße) until Leibnitzstraße. Turn left into Leibnitzstraße, which further down is called Cauerstraße. Still further down the road is called Dovestraße, then Helmholtzstraße. Turn left into Morsestraße, which further down is called Pascalstraße.

Public Transportation

Berlin has an efficient and easy to use public transport system. Below you find the most important information you need to know about how to get around in Berlin. For additional information please rely on http://www.berlin.de/en/public-transportation/

Tickets

With a valid ticket one has access to all public transport in Berlin:
S-Bahn, U-Bahn, buses, trams and ferries.
The fare depends on the tariff zone and the ticket's period of validity.
Tickets can be purchased at multilingual ticket machines on the platforms of S-and U-Bahn stations. In buses fares are paid to the bus driver, in trams at machines inside the trains.
In larger stations the S-Bahn and BVG provide ticket counters. Before the journey starts tickets must be validated by stamping them at the yellow or red boxes on the platforms, in buses or trams. In case of inspection, a ticket that is not stamped is invalid.

Fares:

The so-called single ticket is valid for one person and a two hour journey through the city. Note: It is not allowed to travel towards the direction of the starting point. For that purpose a new single-ticket must be purchased.

Single-Ticket

Tariff	AB:	2,60;	reduced:	1,60	Euro
Tariff	BC:	2,90;	reduced:	2,00	Euro
Tariff	ABC:	3,20;	reduced:	2,30	Euro

Day-Ticket

Tariff	AB:	6,70;	reduced:	4,70	Euro
Tariff	BC:	7,00;	reduced:	5,10	Euro
Tariff	ABC:	7,20;	reduced:	5,30	Euro

The reduced tariff can be used for children from the age of 6 to the age of 14.
A short distance ticket costs 1,50 Euro (reduced 1,20 Euro) and counts for three stops with S- and U-Bahn. Changing trains is allowed. The ticket is also valid for six stops in buses and trams but without changing vehicles.

Hotels

NH Hotel - Kurfürstendamm. Airport Tegel - Take Bus 109/X9 direction S+U Zoologischer Garten to bus stop "Kurfürstendamm/Uhlandstraße". Located at Grolmanstr. 41-43. 10623 Berlin.

Day 1: September 23rd, 2013 Monday		
Registration & Welcome Coffee/Tea: 08:30–09:30		
Greetings and Plenary Successive Keynotes: 09:30 – 11:30		
09:30 - 09:50	Dr. **Thomas Münker** German Research Foundation (DFG)	**Germany, Opening and greetings**
09:50 - 10:10	Dr. **Ömer Sahin Ganiyusufoglu** Shenyang Machine Tool Co., China	**Chinese approaches to sustainable manufacturing**
10:10 - 10:30	Prof. Dr. **Henrique Rozenfeld** University of Sao Paulo, Brazil	**A Brazilian perspective on remanufacturing,**
10:30 - 10:50	Prof. **I. S. Jawahir** University of Kentucky, USA	**Innovation in sustainable manufacturing education**
10:50 - 11:10	Prof. **Marwan K. Khraisheh** Masdar Institute, United Arab Emirates	**Sustainability in manufacturing with a perspective on UAE/Masdar**
11:10 - 11:30	Prof. Dr. Ing. **Günther Seliger** Technische Universität Berlin, Germany	**Sustainable manufacturing -A German perspective on shaping global value creation**
Coffee/Tea Break: 11:30 - 12:00		

PROGRAMME

Day 1: September 23rd, 2013 Monday

Parallel Paper Session: 12:00 - 13:45

SESSION 1: Entrepreneurship	**SESSION 2: Value Creation**	**SESSION 3: Resource Utilization**	**SESSION 4: Equipment**
Room: 112 Fraunhofer	*Oval Office*	*Room 001 IWF*	*Room 002 IWF*
Moderator: Dr. **Holger Kohl**	Moderator: Prof. **Noordin Yusof**	Moderator: Prof. **Ahmed Abu Hanieh**	Moderator: Prof. **Dirk Bähre**
M. Galeitzke; H. Kohl; R. Orth: Sustainability incubators: a coordinated collaborative approach towards sustainable manufacturing amongst small and mediumsized enterprises	**N. M. Yusof; M. Z. Mat Saman; N. K. Kasava:** A conceptual sustainable domain value stream mapping framework for manufacturing	**A. A. Hanieh, A. Hasan; S. AbdElall; P. Krajnik:** The role of resource efficiency in engineering education	**T. Holkup; J. Vyroubal; J. Smolik:** Improving energy efficiency of machine tools
F. Tonelli; S. Short; P. Taticchi: Case study of ILVA, Italy: the impact of failing to consider sustainability as a driver of business model evolution	**K. D. Seevers; F. Badurdeen; I.S. Jawahir:** Sustainable value creation through innovative product design	**O. Pialot; D. Millet:** Upgradable system opportunities in order to rationalize materials	**G. Ingarao; H. Vanhove; K. Kellens; A. K. Behera; F. Micari; J. Duflou:** Energy consumption analysis of robot based SPIF
J. Palacios; M. Pinto; B. Müller; T. Guidat; Y. B. Saavedra: Interdisciplinary planning of sustainable value creation modules with low income communities in developing countries	**R. Steinhilper; A. Kruse; T. Drews:** Ecological analysis of manufacturing systems focusing on the identification of varietyinduced non value adding emission	**S. Fischer**: Material efficiency in companies of the manufacturing industry: classification of measures	**P. Schnellbach; G. Reinhart:** Interdependencies between energy productivity and target figures of lean production systems
K. King: Strategic innovation priorities for sustainable manufacturing in Australia	**U. Dombrowski; C. Riechel:** Sustainable factory profile: a concept to support the design of future sustainable industries	**S. C. Nwanya; P.O. Onah; I.E. Onyia:** Process optimization of resources for packaged water factories in Nigeria	A. Loderer; B. Galovskyi; W. Hartmann; T. Hausotte: Measurement strategy for a production-related multi-scale inspection of formed work pieces
A. Borlakova: Modeling of enterprise investment activity, taking into account an environmental factor	**E. Järvenpää; R. Heikkilä; R. Tuokko:** TUT-microfactory – a small-size, modular and sustainable production system	**P. Refalo; M. Zammit:** Water management in sustainable manufacturing	**C. Camposeco-Negrete:** Optimization of cutting parameters using robust design for minimizing energy consumption in turning of AISI 1018 steel with constant material removal rate
E. Komassi; R. Pal: Investigating short term strategies in product sustainability index implementation, a case study at IKEA	**M. Felicio; D. C. Amaral:** Environmental indicators applied to reality of Eco-Industrial Park (EIP)	**R. F. Reis; J. S. Cordeiro:** Sustainable uses and method for water treatment plant sludges	**O.O. Owodunni; T. Zhang; J. Gao:** Energy consideration in machining operations – towards explanatory models for optimisation results

15 Minute Panel Discussion

13:45 - 15:15 Lunch Break

Day 1: September 23rd, 2013 Monday

Parallel Paper Session: 15:15 – 17:00

PARRALLEL SESSIONS

SESSION 5: Knowledge	SESSION 6: Lifecycle	SESSION 7: Maintenance	SESSION 8: Process
Room: 112 Fraunhofer	*Oval Office*	*Room 001 IWF*	*Room 002 IWF*
Moderator: Prof. **Rainer Stark**	Moderator: Prof. **Shahin Rahimifard**	Moderator: Prof. **Marwan Khraisheh**	Moderator: Prof. **Rafael Wertheim**
L. Nikolova; E. Plotnikova: Regional investment attractiveness in an unstable and risky environment	**S. Zhang; F. Badurdeen; K. Rouch; I.S. Jawahir:** On improving the product sustainability of metallic automotive components by using the total life-cycle approach and the 6R methodology	**J. R. Gamage; W. L Ijomah; J. Windmill:** What makes cleaning a costly operation in remanufacturing?	**A. Schubert; O. Harpaz; B. Books; U. Eckert; R. Wertheim:** HPC for improved efficiency on standard machine tools by using new fluiddriven spindles
D. Wolff; L. Hundt; S. Dreher: Requirements on the engineering of advanced standby strategies in automobile production	**A. Lo Giudice; C. Mbohwa; M. Clasadonte:** Life Cycle Inventory (LCI) analysis of the sicilian artistic and traditional ceramics as a tool for sustainable manufacturing	**N. Chari; U. Venkatadri; D. Aït- Kadi; C. Diallo:** Manufacturing strategy using new and reconditioned rotable spare parts	**A. Kheireddine; A. Ammouri; R. Hamade:** Finite element modeling of laser assisted friction stir welding of carbon steels for enhanced sustainability of welded joints
A. K. Kulatunga; P. R. Jayatilaka; M. Jayawickrama: Drivers and barriers to implement sustainable manufacturing concepts in Sri Lankan manufacturing sector	**D. B .Garcia; M. Teresa; P. Aguilar; F. C. Rodrigues:** Life cycle assessment of structural system in Brazilian buildings	**B. Wu; Y. Zhang; D. Zhang; M. Luo:** Adaptive location of repaired blade for NC machining	**G. Loglisci; L. Settineri; P. Priarone: C**utting tool manufacturing: a sustainability perspective
H. Arman; A. Ramahi; F. Abubasha; N. AL Othman; H. Safadi; M. Kmail: Assessment of perspectives and challenges on sustainability in Palestine	**P. Martinez-Caballero; B. Basdere; J. Richter; F. Parthey; K. Mueller:** Structured identification of business improvement opportunities using life cycle assessment: a case study in the gas turbine industry	**J. Wang; P. Wang; R. X. Gao:** Tool life prediction for sustainable manufacturing	**R. Schlosser:** Sustainability of energy and material consumption within manufacturing processes
S. Asmus; F. Karl; G. Reinhart; M. Grassl; A. Mohnen: Energy efficiency in production processes – the influence of consumption visualization and staff training	**A. Ciroth; J.-P. Theret; M. Fliegner; M. Srocka; V. Bläsig; Ö. Duyan:**Integrating life cycle assessment tools and information with product life cycle management / product data management	**N. Nanjo; Y. Yamamon; K. Kato; H. Ookawa; H. Kawaharada; H. Hiraoka:** Part agent that proposes maintenance actions for a part considering its life cycle	**T. Lu; O. Dillon Jr.; I.S. Jawahir:** A Thermal analysis framework for cryogenic machining and its contribution to product and process sustainability
M. Z. Mat Saman; M. Azmi; S. Sharif; N. Zakuan; S. Mahmood: Proposed framework for end-of-life vehicle recycling system implementation in Malaysia	**R. Steinhilper; M. Süchting; A. Kruse:** Ecological holistic assessment for production technologies	**Y. Zhang; D. Zhang; B. Wu; M. Luo:** Machining allowance optimization of complex parts with integrated structure	**L. Zheng; X. Zhang; C. Wang; S. Li; L. Wang; Y. Song:** Experimental study of micro-holes position accuracy on drilling flexible printed circuit board

15 Minute Panel Discussion

17:00 – 18:00: Transfer from Conference Venue to Evening Program (Boat Trip on River Spree)

Conference dinner during Boat Trip on River Spree
Time: 18:00 – (22:00)

Day 2: September 24th, 2013 Tuesday

08:30 – 09:00: Coffee and Tea

Parallel Paper Session: 09:00 – 10:45

PARRALLEL SESSIONS

SESSION 9: Implementations	SESSION 10: Remanufacturing	SESSION 11: Energy Efficiency	SESSION 12: Material
Room: 112 Fraunhofer	*Oval Office*	*Room 001 IWF*	*Room 002 IWF*
Moderator: Prof. **Christoph Herrmann**	Moderator: Prof. **Roland Jochem**	Moderator: Prof. **Matthias Putz**	Moderator: Prof. **Ramsey Hamade**
B. Cimatti; G. Campana: The slow factory: a new paradigm for manufacturing	**D. Paraskevas; K. Kellens; R. Renaldi; W. Dewulf; J. Duflou:** Closed and open loop recycling of aluminium: a life cycle assessment perspective	**M. Putz; U. Götze; J. Stoldt; E. Franz:** Fostering energy efficiency by way of a techno-economic framework	**A. Ammouri; A. Kheireddine; R. Hamade:** Evaluating the performance of selected constitutive laws in the modeling of friction stir processing of Mg Alloy AZ31b – towards a more sustainable process
N. Indrianti; D. Perwati: An optimization model for a sustainable agro-livestock industry	**T. Guidat; A. Barquet; T. Hamamoto; H. Rozenfeld; G. Seliger**: Attractiveness criteria for remanufacturing in Brazilian enterprises	**P. Harris; G. O'Donnell; N. Aughney; T. Whelan:** Energy usage and efficiency in nonconventional micromachining	**M. A. Lajis; N. Kamilah Yusuf; M. Z. Noh; M. Ibrahim:** Mechanical properties and surface integrity of direct recycling aluminium chips (AA6061) by hot press forging process
S. Jendia; M. El-Saikaly: Study of the possibility to reuse waste plastic bags as a modifier for asphalt mixture properties (binder course layer)	**N. Alonso Movilla; P. Zwolinski; F. Barnabé; C. Dalla Zuanna; V. Moulin:** Considering real end-of-life scenarios in a design for disassembly methodology	**G. Lee; J. Jeong; S. Kim; D. Lee; J. Kim:** Energy saving by using a redundantly actuated parallel mechanism	**B. Döbbeler; M. Binder; N. Kramer; R. Grüter; D. Lung; F. Klocke:** Ecological evaluation of PVD and CVD coating systems in metal cutting processes
D. Khripko; A. Schlüter; M. Rosano; J. Hesselbach: Product carbon footprint in polymer processing – a practical application	**J. Souza; J. Gomes; E. Kawachi:** Sustainable water reuse resulting from oily wastewater of the manufacturing industry	**E. Woolley; L. Sheldrick; J. Arinez; S. Rahimifard:** Extending the boundaries of energy management for assessing manufacturing business strategies	**F. Mirtsch; M. Mirtsch; S. Lewkowicz:** Resource-saving manufacturing of more dimensional stiffened sheet metals with high surface quality and innovative lightweight products
N. Aughney; G. O'Donnell: Implementing energy efficiency in manufacturing – overcoming risk perception barriers and reducing cost impacts	**S. Supekar; S. Skerlos:** Market driven emissions associated with supplying recovered carbon dioxide to sustainable manufacturing applications	**S. Züst; A. Gontarz; K. Wegener:** Energy equivalent of compressed air consumption in a machine tool environment	**I. Emri; J. Gonzalez-Gutierrez; P. Oblak; B. Von Bernstorff:** Improving powder injection moulding by modifying binder viscosity through different molecular weight variations
T. Creutznacher; R. Lepratti; S. Lamparter; G. Heinecke: Performance adaptive manufacturing processes in an energy efficient car prouction	**G. Schuh; T. Potente; C. Wesch-Potente; A. Hauptvogel:** Sustainable increase of overhead productivity due to Cyber-Physical-Systems	**B. Wahyudi; H.W.M. Hoeijmakers; S. Soeparman: O**ptimization design of tandem blade rotor of new savonius hydrokinetics turbine model	**M. Raina; T. Gries:** Sustainable manufacturing of near net shaped engineering flexible fibrous structures for high value applications
		I. Eliseeva; O. Borozdina; H. Rittinghausen: Worldwide development of efficient energy production in the G20 countries	

15 Minute Panel Discussion

10:45 – 11:15: Coffee/Tea Break

Day 2: September 24th, 2013 Tuesday

Parallel Paper Session: 11:15 – 13:00

PARALLEL SESSIONS

SESSION 13: Design	**SESSION 14: Supply Chain**	**SESSION 15: Energy Assessment**	**SESSION 16: Sustainability Assessment**
Room: 112 Fraunhofer	*Oval Office*	*Room 001 IWF*	*Room 002 IWF*
Moderator: Prof. **Stefan Bracke**	Moderator: Prof. **Stephen Evans**	Moderator: Prof. **Joost Duflou**	Moderator: Prof. **Peter Ball**
S. Bracke; J. Michalski; M. Inoue; T. Yamada: CDMF-RELSUS concept: reliable products are sustainable products – automotive case study "clutch"	**H. Pimenta; P. Ball; J. Aguiar; S. Evans: E**nvironmental management practices within the supply chain: a case study of textile industry	**V. Vasyutynskyy; D. Nadoveza; S. Hesse; D. Kiritsis:** Visual analysis of performance indicators and processes in modern manufacturing	**P. Ball; S. Roberts; A. Davé; H. Pimenta**: Towards a factory ecoefficiency improvement methodology
M. Huber; J.-P. Nicklas; N. Schlueter; P. Winzer; J. Zülch: New approach to integrate customers in early phases of product development processes by using virtual reality	**H. Fujikawa:** Gas cylinder distribution planning for saving the LP gas distributors	**N. Weinert; J. Fischer; G. Posselt; C. Herrmann:** Lean and green framework for energy efficiency improvements in manufacturing	**S. Greinacher; G. Lanza; A. Jondral; R. Moser:** Monetary assessment of an integrated lean-/green-concept
I. Kaku; D. Jiang; R. Zhang; Y. Yin: How to solve the new product design model considered life cycle cost and product architectures	**K. Nakashima; T. Sornmanapong; H. Ehm; G. Yachi:** Analysis a stochastic inventory control system under variability of semiconductor supply chain in automotive industry	**J. Larreina; A. Gontarz; V. K. Nguyen; C. Giannoulis; B. Sinceri; P. Stavropoulos:** Smart Manufacturing Execution System: the possibilities of evaluating the sustainability of a prouction process	**N. Mishima:** A study on a sustainability indicator of manufacturing processes
J. Johari; D. A. Wahab; R. Ramli: Enhancing End-of-Life vehicle recovery through modularity optimisation	**Z. Lotfi; M. Mukhtar; S. Sahran; A. T. Zadeh:** The level of organizational integration framework	**J. Stoldt; D. Neumann; T. Langer; M. Putz; A. Schlegel:** Increasing energy efficiency through simulation-driven process evaluation	**V. Glinskiy; L. Serga; M. Khvan:** Sustainable development of socioeconomic systems: a new approach to assess
J. Chen; I.-T. Shen; H.-C. Huang: Energy saving innovative design of green machine tools by case-based reasoning		**T. Heinemann; S. Thiede; K. Mueller; J. Linzbach; B. Berning; C. Herrmann:** Life cycle evaluation of factories: approach, tool and case study	**I. Garbie:** Developing a new assessment framework of sustainability in manufacturing enterprises
B. Yilmaz; M. Yilmaz; M. Yesil; H. Karabudak; O. Gezgin: The innovative waste container for sustainable cities		**M. Shuaib; D. Seevers; T. Lu; F. Badurdeen; I.S. Jawahir: Sustainability evaluatio**n using a metrics-based Product Sustainability Index (ProdSI) methodology – a case study of a consumer electronics product	**R. Schmitt; E. Permin; S. Losse:** Achieving resource- and energyefficient system optima for production chains using cognitive self-optimization

15 Minute Panel Discussion

13:00 – 14:30 Lunch Break

Special Session CRC 1026

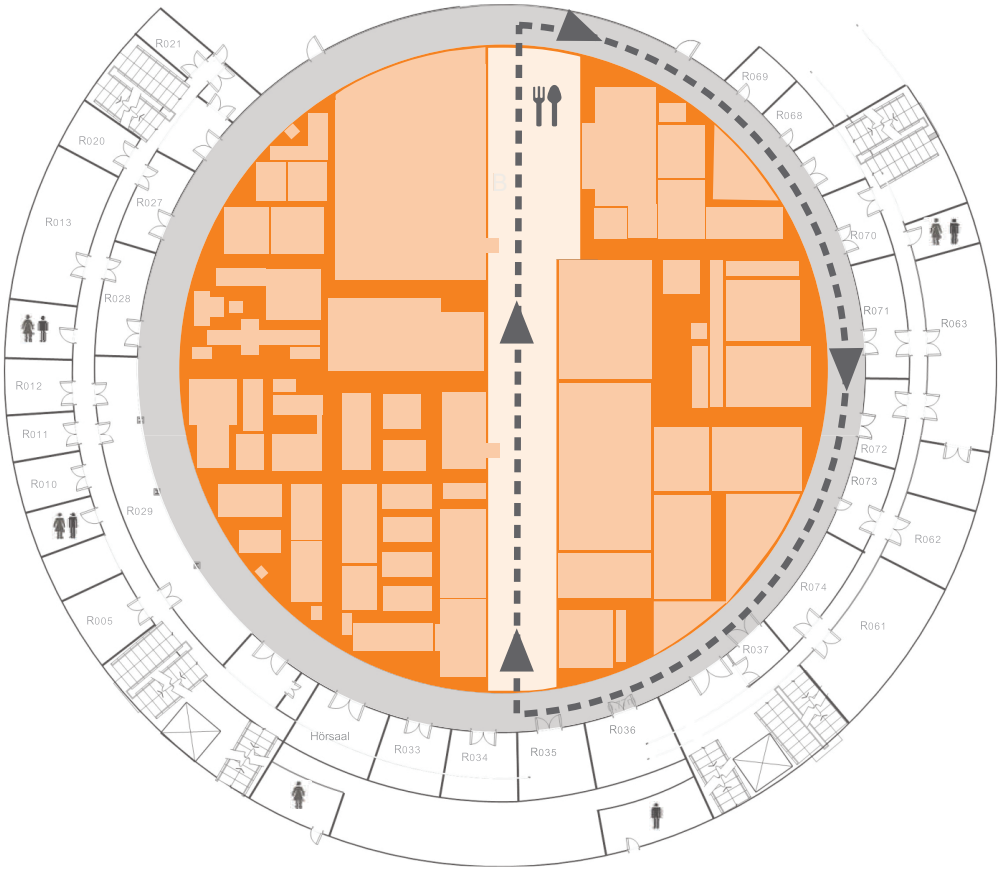
Special Session CRC 1026: 14:30 – 16:30

An insight into the German National Science Foundation (DFG) funded Collaborative Research Centre (CRC) 1026 “Sustainable Manufacturing – Shaping Global Value Creation” is given by a walk through the Laboratory of Sustainable Manufacturing.

Using the examples bicycle and turbo machine, the Laboratory for Sustainable Manufacturing shows how the CRC projects and connected projects advance the essential need for sustainability by technical innovation, new service systems and qualification processes.

© PTZ

Wind Turbine | Gas Turbine | Bicycle



Testfield Exhibition Scheme

Day 2: September 24th, 2013 Tuesday

Parallel Paper Session: 16:30 – 18:45

PARALLEL SESSIONS

SESSION 17: Strategies	**SESSION 18: Tools and Technologies**	**SESSION 19: Energy Awareness**
Room: 112 Fraunhofer	*Oval Office*	*Room 001 IWF*
Moderator: Prof. **Matthias Finkbeiner**	Moderator: Prof. **Eckart Uhlmann**	Moderator: Dr. **Nils Weinert**
K. Wolf; Y.-J. Chang; R. Scheumann; S. Neugebauer; A. Lehmann; M. Finkbeiner: What do we assess for a sustainable society from a manufacturing perspective?	**K. Kianinejad; E. Uhlmann:** Investigation of the upgrading potentials of out-of-date cutting machine tools to promote sustainable and global value creation	**U. Aradag; B. Mert; G. Demirel; S. Uludag; Ö. Ünver; S. Aradag:** A framework for a multiagent-based virtual enterprise with a microgrid energy market model
A. Fügenschuh; I. Vierhaus: System dynamic optimization in the sustainability assessment of a world-model	**B. Peukert; J. Mewis; M. Saoji; E. Uhlmann; S. Benecke; R. Thomasius; N. F. Nissen; K.-D. Lang:** Microsystem enhanced machine tool structures to support sustainable production in value creation networks	**S. Emec; M. Kuschke; F. Huber; R. Stephan; Kai Strunz; G. Seliger:** Stochastic optimization method to schedule production steps according to volatile energy price
A. Fügenschuh; I. Vierhaus; R. Van Veldhuizen: Production planning for noncooperating companies with nonlinear optimization	**T. D. Nguyen; M Kleinsorge; A. Postawa; R. Scheumann; K. Wolf; G. Seliger; J. Krüger:** Human centric automation: using markerless motion capturing for ergonomics analysis and work assistance in manufacturing processes	**T. Schindler; A. Quezada; M. Abramovici:** MEDA: Manufacturing Energy Demand Assessment Method for future production planning and product development
H. Send; A. N. Zuch; S. Friesike; J. Steingrimsson; G. Seliger: Value creation in open source hardware models	**P. Fürstmann; E. Uhlmann; B. Rosenau; S. Gebhard; R. Gerstenberger; G. Müller:** The potential of reducing the energy consumption for machining TiAl6V4 by using innovative metal cutting processes	**M. Swat; T. Stock; D. Bähre; G. Seliger:** Monitoring production systems for energyaware planning and design of process chains
S. Neugebauer, Y.-J. Chang, M. Finkbeiner, M. Maliszewski, K. Lindow, R. Stark: Life cycle sustainability assessment & sustainable product development: a case study on Pedal Electric Cycles (Pedelec)	**J. Steingrimsson; H. Weinaug; N. Oertwig:** Rapid Sustainable Plant Assessment (RSPA) – experiences of practical application and its impact on the further development	**R. Sercan Altıntaş; M. Ural Uluer; Ö. Ünver; S. Engin Kılıç:** A theoretical energy consumption prediction model for prismatic parts using STEP AP224 features
J. Bonvoisin; J. Wewior; F. Ng; G. Seliger: Openness as a supportive paradigm for ecoefficient product-service systems	**H. Weinaug; S. Kolomiichuk; R. Jochem; N. Oertwig:** Evaluation of energy and resource efficiency supported by enterprise modeling – experiences from application cases and their significance for the multi-perspective modeling approach	**C. Veiga; L. Rocha; M. Rodriguez; D. Rodrigues:** Cloud SME – sustainable computer aided engineering for SME's
A. Brose; A. Fügenschuh; P. Gausemeier; I. Vierhaus; G. Seliger: A system dynamic enhancement for the scenario technique	**W. M. Wang; A. Pförtner; K. Lindow; H. Hayka; R. Stark:** Using ontology to support scientific interdisciplinary collaboration within joint sustainability research projects	**C. Bohr; S. Waltemode; J. Aurich:** Reducing the cumulative energy demand of technical product-service systems
H. Kohl; R. Orth; O. Riebartsch: Sustainability analysis for indicator-based benchmarking solutions	**J. Steingrimsson; G. Seliger:** Sourcing automation to the crowds – by means of low cost technical solutions	
	R. McFarland; C. Reise; A. Postawa; G. Seliger: Learnstruments in value creation and learning centered work place design	

15 Minute Panel Discussion

Individual Evening Program in Berlin

Day 3: September 24th, 2013 Wednesday			
08:30 – 09:00: Coffee and Tea			
Exemplary Global Research Cases			
Time: 09.00 – 12:30			
Global education and project labs	**Simulation of defining a business plan for Remanufacturing**	**Europe-Middle East partnership for sustainable engineering**	**ICT as an enabling technology for sustainable manufacturing**
Room: Learning Centre	*Room: 112 Fraunhofer*	*Room: 307 IWF*	*Room: 103 Fraunhofer*
Moderator: Dr. **Carsten Reise**	Moderator: Prof. **Henrique Rozenfeld**	Moderator: Dr. **Peter Krajnik**	Moderator: Dr. **Rick Greenough**
Innovative learning and teaching in international student projects will be introduced. Session attenders can participate in interactive wind, solar, material flow and simulation labs located in a multifunctional learning center.	BRAGECRIM project results covering guidelines to support business plans for remanufacturing will be discussed. Participants will create a business plan for a fictitious company.	Best practice examples of university-industry cooperation and barriers and chances for University-Industry partnership in Middle East will be analyzed.	Global and European perspectives for Information and Communication Technologies as an enabler of sustainable factories will be discussed. Representatives from the European Commission and the Intelligent Manufacturing System (IMS) program present their vision for Horizon 2020 and new manufacturing technology projects.
Panel Discussion			
12:30 – 13:30: Lunch Break			
End of the 11th Global Conference on Sustainable Manufacturing			

PROGRAMME

Evening Programme

Evening Program

The first day of the conference features a boat cruise on river Spree through the heart of Berlin. This boat trip covers major sightseeing points of interest such as the Federal Chancellery of Germany, the Swiss embassy, the Berlin main train station, the museum island, the Reichstag and many more.

The boat trip will include a conference dinner with all participants. The boat will departure at 18:00 O'Clock at Dovebrücke in Berlin. Please arrive in time and please note that you need to present your conference badge in order to be allowed to attend the boat trip. In regards to the focus on sustainability throughout the conference, the dinner will provide a vegetarian menu only.

The evenings on 24th and 25th of September provide a possibility for participants to discover Berlin individually. Berlin is a diverse and culturally multifaceted city. The conference material includes a Berlin WelcomeCard featuring a 72 hour BVG ticket, a detailed map of Berlin as well as further information about sightseeing spots and restaurants.

Conference Venue Map

PTZ | Produktionstechnisches Zentrum

Conference Venue Map
PTZ | Produktionstechnisches Zentrum Berlin

1. Room 001 IWF
2. Room 002 IWF
3. Room 112 Fraunhofer
4. Oval Office
5. Keynote Room S001
6. Room 307 Preparation room
7. Room 313 Computer room
8. Testfield
9. Lunch
10. Coffee Brakes
11. Wardrobe
12. Registration