



**42nd CIRP Conference on Manufacturing Systems
Sustainable Development of Manufacturing Systems
Grenoble, Wed. 3 - Fri. 5, June 2009**

Wednesday, June, 3rd, 2009

Opening, 09:00:00-09:10:00

1. Welcome

Keynotes, 09:10:00-11:00:00

1. 09:10-10:05
New Challenges for Sustainable Manufacturing: Modelling Issues at the Product, Process and System Levels,
I. S. Jawahir, Center for Manufacturing, University of Kentucky, USA
2. 10:05-11:00
Some production management problems in a large variety context,
Y. Frein, G-SCOP Laboratory, France

A1 - Assembly, 11:30:00-13:00:00

1. Designing proactive assembly systems - Criteria and interaction between Automation, Information, and Competence,
Åsa Fasth, Thomas Lundholm, Lena Mårtensson, Kerstin Dencker, Johan Stahre
2. Service-based Business Concepts for Assembly: How do Solutions Affect Total Cost of Ownership?,
Marcus Schroeter, Sabine Biege
3. Implementation Strategy for Smart Tools and Clamping Systems with RFID,
Markus Faltin, Jan Aurich, Felipe Gómez Kempf

B1 - Information Systems, 11:30:00-13:00:00

1. Using Web Services to support the design phase of manufacturing applications,
Isabel Sarachaga, Elisabet Estévez, Aintzane Armentia, Arantza Burgos, Marga Marcos
2. Context Data Model, the Backbone of a Smart Factory,
Dominik Lucke, Carmen Constantinescu, Engelbert Westkämper
3. Audit of production launch of a new product in a multinational company,
Laurène Surbier, Gülgün Alpan, Eric Blanco

C1 - Production Systems, 11:30:00-13:00:00

1. Application of the PageRank algorithm for ranking locations of a production network,
Bernd Scholz-Reiter, Fabian Wirth, Sergey Dashkovskiy, Michael Kosmykov, Thomas Makuschewitz
2. Approximation algorithms for the makespan minimization with positive tails on a single machine with a fixed non-availability interval,
Imed Kacem

3. Dynamic Job Rotation for Workload Balancing in Human Based Assembly Systems,
George Michalos, Sotiris Makris, Loukas Rentzos, George Chryssolouris

D1 - Sustainability, 11:30:00-13:00:00

1. Experimental Analysis of Sustainability in Machining of Inconel 718,
Franci Pusavec, Davorin Kramar, Jani Kenda, Peter Krajnik, Janez Kopac
2. Energy Efficiency of Machine Tools: Extending the Perspective,
Christoph Herrmann, Sebastian Thiede, André Zein, Steffen Ihlenfeldt, Peter Blau
3. Fuzzy Decision Support System for Sustainable Product Design and Manufacturing,
Christian Masche

A2 - Manufacturing Processes, 14:30:00-16:00:00

1. Knowledge based integrated design guidelines for forging process selection,
Mohsen Sadeghi, Jean-Yves Dantan, Ali Siadat, Régis Bigot
2. Integrated engineering concerning foundry technology realized inside co-engineering design systems,
Zenon Ignaszak
3. Individualized production by means of high power selective laser melting,
Henrich Schleifenbaum, Wilhelm Meiners, Konrad Wissenbach

B2 - Design Systems, 14:30:00-16:00:00

1. Development of a downsized modular manufacturing system and its efficiency analysis,
Nozomu Mishima, Shizuka Nakano, Kiwamu Ashida, Shinsuke Kondoh
2. A Generic Methodology for the Implementation of Service Interface Functions Using IEC61499,
Guadalupe Morán, Federico Pérez, Dario Orive, Elisabet Estévez, Marga Marcos
3. A Study on Requirements for Development of a Design Methods Selection Guide,
Nathalie Lahonde, Jean-François Omhover, Améziiane Aoussat

C2 - Maintenance, 14:30:00-16:00:00

1. Condition Based Productive Maintenance and Quality Assurance in Highly Automated Automotive Parts Suppliers,
Camilla Langeland, Kristian Martinsen
2. The Maintenance Intervention Priority Index: A Method Supporting Preventive Maintenance Accuracy,
Konstantinos Georgoulas, Sotiris Makris, George Chryssolouris
3. Integrated Evaluation of Value Added Networks: A Concept incorporating Dynamics, Uncertainty and Multi-dimensional Target Systems,
Gisela Lanza, Jörg Ude

D2 - Sustainability, 14:30:00-16:00:00

1. Implementing an environmental sustainability manufacturing strategy in the wood-based furniture industry,
Manuel Seidel, Des Tedford, Rainer Seidel, Ben Smaill, David Walker, Richard Cross, Logan Wait

2. An Integrated Strategy of Design for Remanufacturing—application to a B2B product,
Haining Liang, Nicolas Tchertchian, Dominique Millet, Daniel Brissaud
3. Reducing environmental impact from manufacturing: Three industrial cases for the manufacturing of ‘green’ products,
Magnus Wiktorsson, Anna Granlund, Monica Bellgran

A3 - Cutting, 16:30:00-18:00:00

1. Method for On-line Quality Monitoring of AWJ Cutting by Infrared Thermography,
Mladen Cvjeticanin, Mihael Junkar, Alojz Poredoš, Andrej Lebar
2. Automatic Modification of Cutting Conditions for Ball End mill Operations with Using Virtual Machining Simulator,
Hirohisa Narita, Hideo Fujimoto, Keiichi Shirase, Eiji Arai
3. Temperature Prediction of High Speed Cutting Ti6Al4V in the Different Cutting Conditions Based on Finite Element Method,
Feng Jiang, Jianfeng Li, Jie Sun, Song Zhang, Lan Yan

B3 - System Modelling, 16:30:00-18:00:00

1. The Digital Factory and Digital Manufacturing - A Review and Discussion,
Danfeng Chen, Torsten Kjellberg
2. Algorithmic Design Methodology for Process Plans and Architectural Configurations of Manufacturing Systems,
Aamer Baqai, Samuel Schmidt, Jean-Yves Dantan, Ali Siadat, Patrick Martin
3. Fluid Dynamics Analogy to Manufacturing Systems,
Konstantinos Efthymiou, Nikolaos Papakostas, Dimitris Mourtzis, George Chryssolouris

C3 - Planning, Line Balancing, 16:30:00-18:00:00

1. CNC Worknet: a network of flexible production plants,
Dennis Ten Dam, Henk Anema, Fred Van Houten, Eric Lutters
2. Balancing lines with CNC machines: a multi-start heuristic,
M. Essafi, X. Delorme, A. Dolgui
3. Interactive Manufacturing Systems Considering Interaction between Producers and Consumers,
Shintaro Yokoi, Takeshi Takenaka, Nariaki Nishino, Kanji Ueda

D3 - PSS, 16:30:00-18:00:00

1. Industrial Services - Corporate Practice and Future Needs for Action in Companies and in Applied Research,
Kurt Matyas, Armin Rosteck, Wilfried Sihm
2. From Component to System Solution Supplier: Strategic Warranty Management as a Key to Efficient Integrated Product/Service Engineering,
Erik Sundin, Anna Öhrwall Rönnbäck, Tomohiko Sakao
3. Requirement Negotiation Process for the Design of Cooperative Services,
Kentaro Watanabe, Koji Kimita, Yoshiki Shimomura

Keynote 2, 08:30:00-10:00:00

1. 08:30-09:15
Research Infrastructure for Future Manufacturing Systems,
Hervé Péro, DG Research European Commission, Belgium
2. 09:15-10:00
How to Design and Offer Services Successfully,
*J. C. Aurich, Institute for Manufacturing Technology and Production Systems,
University of Kaiserslautern, Germany*

A4 - Robot, Manufacturing, 10:30:00-13:00:00

1. Analysis of the deviations of a casting and machining process using a Model of Manufactured Parts,
Frédéric Vignat, François Villeneuve, Mojtaba Kamali Nejad
2. Manufacturing complexity evaluation at the design stage for both machining and layered manufacturing,
Olivier Kerbrat, Pascal Mognol, Jean-Yves Hascoet
3. Evolutionary motion planning strategies for redundant kinematic structures,
Uwe Heisel, Norman Tonn
4. Accuracy Improvement for Stiffness Modeling of Parallel Manipulators,
Anatol Pachkevich, Alexandr Klimchik, Damien Chablat, Philippe Wenger
5. Robot system applying momentum transmission for acceleration of an endeffector with redundant axis,
Tobias Brett, Günther Seliger, Holger Quiel

B4 - Design Assesment, 10:30:00-13:00:00

1. Design in use: some methodological considerations,
Julien Nelson, Stéphanie Buisine, Améziiane Aoussat
2. On the Assessment of Interfaces in Modular Design,
John Pandremenos, Christoforos Chatzikomis, George Chryssolouris
3. Fuzzy Product Configuration based on Market Segmentation to Form a Product Family,
Bruno Agard, Marco Barajas
4. The customer-oriented bag matrix to support the design leather bags,
Nattapong Kongprasert, Daniel Brissaud, Carole Bouchard, Ameziiane Aoussat, Suthep Butdee
5. Valuation of the Development of Low-Cost Country Suppliers,
Gisela Lanza, Stefan Weiler, Arnd Stoehr

C4 - Planning, 10:30:00-13:00:00

1. Planning production with sizing of human resources,
Myriam Fakhfakh, Maria Di Mascolo, Yannick Frein, Olivier Gourguechon
2. A study on distributed cooperative manufacturing scheduling with approximate Lagrangian decomposition and coordination method,
Toshiya Kaihara, Nobutada Fujii, Susumu Fujii, Satoshi Nishibayashi
3. Digital Planning and Validation of Highly Flexible Manufacturing Systems in the Automotive Body Shop,
Jens Kiefer, Michael Prieur, Günter Schmidgall, Thomas Bär
4. Novel approaches for better transparency in production and supply chains,
D. Karnock, L. Monostori
5. Assembly Planning for an Autonomous Decentralized Manufacturing System Led by a Product Part Agent,
Nobuyuki Sakao, Michiko Matsuda, Yasuhiro Sudo

D4 - PSS, 10:30:00-13:00:00

1. Requirement Analysis for User-Oriented Service Design,
Koji Kimita, Fumiya Akasaka, Anna Rönnbäck, Tomohiko Sakao, Yoshiki Shimomura
2. Methodological Support of Product-Service System-Realization,
Eric Schweitzer, Carsten Mannweiler, Jan C. Aurich
3. Organizational Requirements by Offering Industrial Product-Service Systems,
Horst Meier, Oliver Völker
4. Resource oriented factory planning, a method for valuation of resources on an strategic level with regard to the operative alignment of the company,
Günther Schuh, Bastian Franzkoch, Peter Burggräf, W. F. Rosinski
5. Knowledge-based adaptable design to support customer-oriented production system of industrial equipments,
Nattawut Janthong, Daniel Brissaud, Suthep Butdee

Industrial Visits, 14:00:00-17:00:00

2 different visits offered. Please register on-line on the conference site

(<http://cirpms09.grenoble-inp.fr/>) for the visit you want.

As we have limited places, these will be attributed on a First-Come, First-Served (FCFS) basis:

- 14:30-16:00: MINATEC, Europe's top centre for innovation and expertise in micro and nanotechnology (<http://www.minatec.com/>)
 - Visitors must have their ID during the visit,
- 14:30-17:00: The ESRF, which operates the most powerful synchrotron radiation source in Europe (<http://www.esrf.eu/>):
 - Visitors with a pacemaker are not allowed to visit the experimental installations (2nd part of the visit),
 - Visitors must give their ID to enter in the site,
 - Visitors under 15 years old are not allowed to visit the site

Keynote 3, 08:30:00-10:00:00

1. 08:30-09:15
Valve Co-creation toward Sustainable Society
K. Ueda, National Institute of Advanced Industrial Science and Technology Tsukuba, Japan
2. 09:15-10:00
Topic identification and classification of documents
A. Riel, EMIRAcle, France

A5 - Grinding, 10:30:00-12:30:00

1. A Method for Grinding Helical Drill based on CAD Approach,
Lan Yan, Zhixiong Zhou, Cheng Lin, Feng Jiang
2. CAVE Simulation of Centreless Grinding Process,
Rok Vrabic, Peter Krajnik, Radovan Drazumeric, Bernd Meyer, Peter Butala, Janez Kopac
3. Fabrication Process Analysis Based 3D Grinding Wheel Modeling,
Xuekun Li, Wei Tian, Yiming(Kevin) Rong
4. Efficient and Precise Grinding of Silicon Nitride (Si₃N₄) Ceramics,
Hiroshi Kasuga, Hitoshi Ohmori, Kazutoshi Katahira, Yutaka Watanabe, Taketoshi Mishima

B5 - Control, 10:30:00-12:30:00

1. Cognitive Control for Self-optimizing Production Systems: A Case Study,
Christian Brecher, Tobias Kempf, Werner Herfs
2. Open control of FMS and its application to potential field,
Thierry Berger, Yves Sallez, Damien Trentesaux
3. Admission control of product returns in a reverse logistic context,
Hichem Zerhouni, Jean-Philippe Gayon, Yannick Frein
4. Handling the Dynamics in Logistics - Adoption of Dynamic Behavior and Reduction of Dynamic Effects,
Bernd Scholz-Reiter, Afshin Mehrsai, Michael Görge

C5 - Scheduling, 10:30:00-12:30:00

1. Integrating Manufacturing and Logistic Systems along Global Supply Chains,
Bernd Scholz-Reiter, Enzo Morosini Frazzon, Thomas Makuschewitz
2. A New Simple Scheduling Policy for Improving Tardiness Performance,
Nikolaos Papakostas, George Chryssolouris
3. Dynamic Scheduling Algorithm for Autonomous Supply Chain Negotiation,
Jia Yee Chai, Tatsuhiko Sakaguchi, Keiichi Shirase
4. Metaheuristic methods for balancing machining transfer lines,
Evgeny Gurevsky, Olga Guschinskaya, Anton Ereemeev, Alexandre Dolgui

D5 - Flexibility, 10:30:00-12:30:00

1. Design and engineering processes in highly adaptive plants with ambient intelligence techniques,
Miriam Schleipen, Michael Okon, Michael Baumann, Martin Neukaeufer, Christian Fedrowitz, Martin Feike, Nataliya Popova, Markus Nick, Soeren Schneickert, Martin Wessner (Fraunhofer IESE)
2. Allocation Flexibility - A New Flexibility Type as an Enabler for Autonomous Control in Production Logistics,
Katja Windt, Oliver Jeken
3. Realizing a Factory-in-a-Box Solution in a Local Manufacturing Environment,
Anna Granlund, Mikael Hedelind, Magnus Wiktorsson, Annica Hällkvist, Mats Jackson
4. Flexibility Quantification in Manufacturing System Design,
George Michalos, Sotiris Makris, George Chryssolouris