International Conference on Production Research
Manufacturing Innovation: Cyber Physical Manufacturing
August 10-15, 2019, Chicago, Illinois, USA

Saturday, August 10, 2019
5:00 p.m. – 7:00 p.m. IFPR Executive Board (invitation only) (Geneva)
7:00 p.m. – 9:00 p.m. Dinner

Sunday, August 11, 2019
9:00 a.m. – 5:00 p.m. IFPR Board Meeting (invitation only) (Geneva)

Sunday, August 11, 2019
1:00 p.m. – 7:00 p.m. Registration Desk Open
7:00 p.m. – 9:00 p.m. Opening Reception (open to all attendees) (Zurich ABC)

Monday, August 12, 2019
7:00 a.m. Registration Desk Open
7:00 a.m. Continental Breakfast (Preconvene)

8:00 a.m. – 10:00 a.m. Opening Plenary Session (Zurich D)

Keynote Speakers:
Dr. Albert Jones, Scientific Advisor
National Institute of Standards and Technology (NIST) (USA)
Presentation Title: Smart Manufacturing: Yesterday, Today and Tomorrow

Prof. Oliver Riedel, Director
Fraunhofer IAO (Germany)
Presentation Title: Trends Toward Engineering and Manufacturing Excellence

10:00 a.m. – 10:30 a.m. Refreshment Break (Preconvene)
Concurrent Technical Sessions

M1030-G1: Innovations in Warehouse Operations 1

**Chair:** Dr. Manjeet Singh  
*DHL Supply Chain (USA)*

**Order Batching Optimization for Warehouses with Cluster-Picking**  
Aaya Aboelfotoh and Gursel Suer (Ohio University, USA); Manjeet Singh (DHL Supply Chain, USA)

**A Two-Phase Algorithm to Solve a 3-Dimensional Pallet Loading Problem**  
Manjeet Singh (DHL Supply Chain, USA); Najat Almasarwah, NE. and Gursel Suer (Ohio University, USA)

**Improving the Efficiency of Click and Collect with Vertical Lift Module (VLM)**  
Akhilesh Mesa and Dale Masel (Ohio University, USA)

**Novel Heuristics to Optimize Slotting for Improving Pick and Replenishment Productivities in Warehouses**  
Benjamin Fryman and Gursel Suer (Ohio University, USA); Manjeet Singh (DHL Supply Chain, USA)

M1030-G2: Smart City

**Chair:** Gonzalo Mejía  
*Universidad de La Sabana (Colombia)*

**Information Technology Acceptance in Public Safety in Smart Sustainable Cities: A Qualitative Analysis**  
Vanessa Alves Tonete Oliveira and Gilson D Santos (Federal Technological University of Parana, Brazil)

**Public Safety Decision-Making in the Context of Smart and Sustainable Cities**  
Marcos Colla and Gilson D Santos (Federal Technological University of Parana, Brazil)

**Delivery of Perishable Export Products in Smart Cities: A Case Study in Bogotá (Colombia)**  
Gonzalo Mejía, William Guerrero, Alfonso Sarmiento, Nathalia Serrano, Margarita Sarmiento and Denny Camila Sánchez (Universidad de La Sabana, Colombia)

**Local Accelerator Programs Towards Increasing Innovation Within Smart Cities**  
Isabella Jesemann and Alanus von Radecki (Fraunhofer IAO, Germany)

**Location Suitable for the Implementation of Carsharing in the City of São Paulo**  
Mariana Lage (Universidade de São Paulo, Brazil); Cláudia Machado (Universidade de São Paulo, Brazil); Cristiano Martins Monteiro (Universidade Federal de Minas Gerais, Brazil); Fernando Berssaneti (University of Sao Paulo, Brazil); José Quintainilha (Universidade de São Paulo, Brazil)

**Maximizing Carsharing Profits: An Optimization Model to Support the Carsharing Planning**  
Cristiano Martins Monteiro (Universidade Federal de Minas Gerais, Brazil); Cláudia Machado (Universidade de São Paulo, Brazil); Mariana Lage (Universidade de São Paulo &; USP, Brazil); Fernando Berssaneti (University of Sao Paulo, Brazil); Clodoveu A. Davis Jr. (Federal University of Minas Gerais, Brazil); José Quintainilha (Universidade de São Paulo, Brazil)
Proposed Approach to Measure the Degree of Readiness to Implement Industry 4.0
Wagner Lucato and Athos Pacchini (Universidade Nove de Julho - UNINOVE, Brazil); Giovanni Mummolo and Francesco Facchini (Polytechnic University of Bari, Italy)

Practical Insights on Augmented Reality Support for Shop-Floor Tasks
Philipp Url, Wolfgang Vorraiber and Johannes Gasser (Graz University of Technology, Austria)

Fostering Additive Manufacturing of Special Parts with Augmented-Reality On-Site Visualization
Dominik Kutej and Wolfgang Vorraiber (Graz University of Technology, Austria)

Virtual Reality Enabled Manufacturing of Challenging Workpieces
Sakari Penttilä, Hannu Lund and Juho Ratava (LUT University, Finland); Mika Lohtander (Lappeenranta University of Technology, Finland); Paul Kah and Juha Varis (LUT University, Finland)

*Smart Maintenance Solution with Augmented Reality (AR) and Mixed Reality (MR)
Hyunsuk Baek and Young Jae Jang (Korea Advanced Institute of Science and Technology, Korea)

A Potential Analysis and Evaluation of Cognitive Assistance Systems in the Context of Digitalization
Jessica Klapper (University of Stuttgart, Germany); Bastian Pokorni and Moritz Hämmérle (Fraunhofer Institute for Industrial Engineering IAO, Germany)

Title: R&D Opportunities for Ensuring Manufacturing Competitiveness”
Ronald G. Askin, Industrial Engineering, Arizona State University (USA)

Efficiency Frontier Identification on the Context of Operations Strategy - A Study on Representative Constructs and Variables
Gabriela Veiga (Pontifical Catholic University of Paraná, Brazil); Edson Pinheiro de Lima and Sergio E. Gouvea da Costa (Federal University of Technology - Parana, Brazil); Eileen Van Aken (Virginia Tech, USA)

Evaluation of the Productive and Environmental Potential of Closed-Loop Manufacturing Processes
Flavio Numata, Jr. (Universidade NOVA de Lisboa & Faculdade de Ciência e Tecnologia - FCT, Brazil); Helena Navas (Universidade NOVA de Lisboa, Portugal)

Agile Shopfloor Organization Design for Industry 4.0 Manufacturing
Steffen Bader, Teresa Barth, Philipp Krohn, Rahel Ruchser, Lars Storch and Linda Wagner (ESB Business School University of Reutlingen, Germany); Stefanie Findeisen and Bastian Pokorni (Fraunhofer Institute for Industrial Engineering, Germany); Anja Braun (ESB Business School University of Reutlingen, Germany); Peter Ohlhausen (Fraunhofer Institute for Industrial Engineering, Germany); Daniel Palm (ESB Business School University of Reutlingen, Germany)
Traditional Vs Additive Manufacturing Supply Chain Configurations: A Comparative Case Study
Ajeseun Jimo and Christos Braziotis (Nottingham University Business School, United Kingdom (Great Britain)); Helen Rogers (Technische Hochschule Nürnberg, Germany); Kulwant Pawar (University of Nottingham, United Kingdom (Great Britain))

M1030-V3: IE & OR - Scheduling
Chair: Katsumi Morikawa
Hiroshima University (Japan)

Job Shop Scheduling by Branch and Bound Using Genetic Programming
Katsumi Morikawa, Keisuke Nagasawa and Katsuhiko Takahashi (Hiroshima University, Japan)

Column Generation Algorithms for a Single Machine Problem with Deteriorating Jobs and Deterioration Maintenance Activities
Young-Bin Woo and Ilkyeong Moon (Seoul National University, Korea); Byung Soo Kim (Incheon National University, Korea)

Using Open Access Data to Model a Technician Routing and Scheduling Problem in a Congested Urban Setting
Fabián Castaño (Pontifical Xavierian University, Colombia); Andrés Felipe Gutierrez Bonilla, Nubia Velasco and Ciro Amaya (University of los Andes, Colombia)

A Genetic Algorithm Approach for Multi Objective Cross Dock Scheduling in Supply Chains
Siwaphong Kusolpuchong, Krerkkiat Chusap, Omar Alhawari and Gursel Suer (Ohio University, USA)

Sugarcane Harvest Scheduling Using a Distributed Control Approach
Francisco Munoz (Purdue University, USA & Pontifical Xavierian University Cali, Colombia); Seokcheon Lee (Purdue University, USA)

M1030-V4: Energy Management I
Chair: Dr. Zeyi Sun
Missouri University of Science and Technology (USA)

Track Keynote Speaker:
Title: Adding Sustainability to Lean Product Development: Searching for a Holistic Approach
Joao Paulo Estevam de Souza, Nacional de Pesquisas Espaciais (Brazil)
IFPR Early Career Researchers Mentoring Awardee

A Framework of Integrating Manufacturing Plants in Smart Grid Operation: Manufacturing Flexible Load Identification
Md Monirul Islam, Zeyi Sun, Wenqing Hu and Cihan H Dagli (Missouri University of Science and Technology, USA)

Joint Manufacturing and Onsite Microgrid System Control Using Markov Decision Process and Neural Network Integrated Reinforcement Learning
Wenqing Hu, Zeyi Sun, Yunchao Zhang and Yu Li (Missouri University of Science and Technology, USA)

Optimization of the TOU Pricing for the Utility with the Consumers in the Manufacturing Sector
Weiwei Cui and Yujie Yang (Shanghai University, P.R. China)
Application of the Proknow-C Methodology in the Search of Literature on Performance Indicators for Energy Management in Manufacturing and Industry 4.0
Everton Vieira (Pontifical Catholic University of Paraná, Brazil); Sergio E. Gouvea da Costa (Pontifical Catholic University of Parana & Federal University of Technology - Parana, Brazil); Edson Pinheiro de Lima (Pontifical Catholic University of Parana & Federal University of Technology - Parana, Brazil); Caio Ferreira (Pontifical Catholic University of Parana, Brazil)

12:00 p.m. – 1:30 p.m. Lunch (provided) (Zurich D)
Luncheon Speaker: Adrian Kumar, Vice President, Solutions Design North America DHL (USA)
Presentation Title: Super-Fast Fulfillment

1:30 p.m. – 3:00 p.m. Concurrent Technical Sessions

M1330-G1: Innovations in Warehouse Operations 2 (Zurich A)
Chair: Daniela Popescu
Technical University of Cluj-Napoca (Romania)

*Carton Set Optimization in E-commerce Warehouses*
Manjeet Singh (DHL Supply Chain, USA); Ehsan Ardjmand (Ohio University, USA)

*Evaluation of Alternative Labor Levels to Minimize Average Flowtime at Distribution Centers*
Tianhui Wang and Gursel Suer (Ohio University, USA); Manjeet Singh (DHL Supply Chain, USA)

*Inventory Control Accuracy A Measure of Good Work Ethics*
Bolaji Ishola (Primeline & University of Bridgeprt, USA)

The Study of Evolution Among Logistic Service Quality, Service Compensation and Long-Term Cooperation Commitment
Wen-Hsiang Yu (University of Feng Chia,Taiwan & Tunghai University, Taiwan & The Global Logistics & Commerce Council of Taiwan, Taiwan); Shih-Kuan Chiub (Feng Chia University, Taiwan)

*M Dynamic Decision Transportation Optimization Suite*
Manjeet Singh (DHL Supply Chain, USA)

M1330-G2: Global Economy (Zurich B)
Chair: Jiahua Weng
Waseda University (Japan)

Self-excited Vibration in Production, Economy and Society
Fei Xu and Yumin Shi (University of Science and Technology of China, P.R. China); Zhhua Feng (University of Science and Technology of China, P.R. China); Ming Li (University of Science and Technology of China, P.R. China)

*Operations Sustainability Under Higher Tariffs in a Global Supply Chain*
Omar Alhawari (OHIO, USA); Gursel Suer (Ohio University, USA)
Profit Allocation in the Global Supply Chain with Transfer Pricing and Exchange Rate
Qian Huang, Jiahua Weng, Shunichi Ohmori and Kazuho Yoshimoto (Waseda University, Japan)

Alternative Strategies for Dealing with Idle Capacity in Global Supply Chains
Benjamin Fryman, Gursel Suer and Jue Jiang (Ohio University, USA)

M1330-V1: Digital and Cyber Manufacturing 2 (Zurich C)
Chair: Athakorn Kengpol
King Mongkut’s University of Technology North Bangkok (Thailand)

Forecasting Medical Device Demand with Online Search Queries: A Big Data and Machine Learning Approach
Shuojiang Xu and Hing Kai Chan (University of Nottingham Ningbo China, P.R. China)

The Development of Cyber-Physical Framework for Classifying Health Beverage Flavor for the Ageing Society
Athakorn Kengpol and Jakkarin Klunngien (King Mongkut’s University of Technology North Bangkok, Thailand)

A Study on Highly-Distributed Manufacturing System Simulation
Eiji Morinaga, Daiki Yasuda, Yudai Imagawa and Hidefumi Wakamatsu (Osaka University, Japan); Akira Tsumaya (Kobe University, Japan); Tatsuo Inoue (Formerly, Daifuku Co., Ltd., Japan); Koji Iwamura (Osaka Prefecture University, Japan); Motohiro Ishibashi (Denso Corporation, Japan); Nobutada Fujii (Kobe University, Japan); Eiji Arai (Osaka University, Japan); Susumu Fujii (Kobe University, Japan)

Digital Twins of Exoskeleton-Centered Workplaces: Challenges and Development Methodology
Carmen Constantinescu (Fraunhofer IAO, Germany); Daniela Popescu (Technical University of Cluj-Napoca, Romania); Rares Rus and Claudiu-Alin Rusu (Fraunhofer IAO, TUC-N, Germany & Technical University of Cluj-Napoca, Romania)

Virtual Commissioning of Industrial Control Systems - a 3D Digital Model Approach
Matthias Schamp, Lauren Van De Ginste, Steven Hoedt and Arno Claeyis, El-Houssaine Aghezzaf and Johannes Cottyn (Ghent University &; Flanders Make, Belgium)

Inferring Human Intent in Remote-Control Scenarios
Sigal Berman, Gil Baron, Nissim Abuhaizira and Noam Peles (Ben-Gurion University of the Negev, Israel)

M1330-V2: Manufacturing Strategy 2 (Zurich E)
Chair: Luis Ernesto Quezada
University of Santiago (Chile)

Efficiency Frontier Identification Based on Operations Strategy - A Retrospective Analysis of Leading Authors
Gabriela Veiga (Pontifical Catholic University of Paraná, Brazil); Edson Pinheiro de Lima and Sergio E. Gouvea da Costa (Federal University of Technology - Parana, Brazil)

Measuring Performance Using Swot Analysis and Balanced Scorecard
Luis Ernesto Quezada, Eduardo Reinao, Pedro Palominos and Astrid Oddershede (University of Santiago of Chile, Chile)
Analyses of Outcomes That Use Simulation Modelling Towards Building Theory
Kamil Erkan Kabak (Izmir University of Economics, Turkey); Rob Dekkers (University of Glasgow, United Kingdom (Great Britain)); Johannes Hinckeldeyn (Hamburg University of Applied Science, Germany)

Towards Ultra-Efficient Industrial Areas
Joachim Lentes and Michael Hertwig (Fraunhofer-institute for Industrial Engineering IAO, Germany)

Throughput Analysis of Manufacturing Systems with Buffers Considering Reliability and Cycle Time Using DES and DOE
Jad Imseitif and He Tang (Eastern Michigan University, USA); Mike G Smith (Magna International, USA)

Why and How to Implement Strategic Competence Management in Manufacturing SMEs?
Djerdj Horvat, Nadia Weidner and Cornelius Moll (Fraunhofer Institute for Systems and Innovation Research ISI, Germany)

M1330-V3: Additive Manufacturing - Materials (Zurich F)
Chair: TBA

Modelling Topologically Optimized Parts with Microstructures
Damla Ozkapici (Middle East Technical University &; ASELSAN, Turkey); Ulas Yaman (Middle East Technical University, Turkey)

Embedding QR Codes on the Interior Surfaces of FFF Fabricated Parts
Sinan Gültekin, Ahmet Ural and Ulas Yaman (Middle East Technical University, Turkey)

Cutting Repeatability of an Extruded Wood Plastic Composite in a Post-Production Process
Juha Varis, Amir Toghyani and Sami Matthews (LUT University, Finland)

Effect of Lattice Structures on Natural Frequency of SLA Fabricated Parts
Ali Murat Kayıran and Ulas Yaman (Middle East Technical University, Turkey)

Predictive Model for Thermal and Stress Field in Selective Laser Melting Process - Part I
Lan Li, Lei Yan, Wenyuan Cui, Yitao Chen, Tan Pan, Xinchang Zhang, Aaron Flood and Frank Liou (Missouri University of Science and Technology, USA)

Predictive Model for Thermal and Stress Field in Selective Laser Melting Process - Part II
Lan Li, Lei Yan, Yitao Chen, Tan Pan, Xinchang Zhang, Wenyuan Cui, Aaron Flood and Frank Liou (Missouri University of Science and Technology, USA)

M1330-V4: Energy Management 2 (Zurich G)
Chair: Weiwei Cui

Shanghai University (P.R. China)

Techno-economic Design of Wind Farms: A Methodology and Multi-Scenario Application
Marco Bortolini, Emilio Ferrari and Mauro Gamberi (University of Bologna, Italy); Maurizio Facio and Mojtaba Neda (University of Padova, Italy)

Triple-Coil Inductive Debris Sensor with Special Shielded Coils for Depressing Interference of Dielectric Components
Min Qian, Guofeng Zhao, Yijun Ren, Weidong Diao, Zhihua Feng and Ming Li (University of Science and Technology of China, China)
Application of MCDM Method for Technologies Selection to Support Energy Management
Caio Ferreira and Everton Vieira (Pontifical Catholic University of Parana, Brazil); Sergio E. Gouvea da Costa (Pontifical Catholic University of Parana & Federal University of Technology - Parana, Brazil); Eduardo Loures (PUC-Pr, Brazil); Edson Pinheiro de Lima (Pontifical Catholic University of Parana & Federal University of Technology - Parana, Brazil)
Impacts of Energy Flexibility on Energy Efficiency of Hybrid and Bivalent Facilities
Ekrem Köse (University of Stuttgart, Germany); Alexander Sauer (Fraunhofer Institute of Manufacturing and Automation IPA, Germany)

3:00 p.m. – 3:30 p.m. Refreshment Break
3:30 p.m. – 4:45 p.m. Concurrent Technical Sessions

M1530-G1: Industrial Logistics 1 (Zurich A)
Chair: Stefan Minner
Technical University of Munich (Germany)

SME Innovation and Development in the Context of Industry 4.0
Teresa Taurino and Agostino Villa (Polytechnic University of Turin, Italy)
Integrating Capacity and Logistics of Large Additive Manufacturing Networks
Nicola Mastrandrea, Massimo de Falco and Luigi Rarità (University of Salerno, Italy)
The Response Latency in the Global Production and Logistics A Trade-Off Between Robotization and Globalization of a Chain
David Bogataj, Daria Battini, Martina Calzavara and Alessandro Persona (University of Padova, Italy)
Assessment of Isometric Pulls Strength of Industrial Cart Pullers -An Electromyography Study from an Apparel Manufacturing Industry
Zahid Rashid, Muhammad Shafiq, Muhammad Awais Aslam, Neelum Iqbal and Haji Bahader Khan (University of Engineering & Technology, Pakistan); Marialuisa Menanno and Pasquale Ragno (University of Sannio, Italy)
Productivity Improvement Through Time Study Approach: A Case Study from an Apparel Manufacturing Industry of Pakistan
Ateeq ur Rehman, Muhammad Babar Ramzan, Abher Rasheed, Muhammad Salman naeem (National Textile University, Pakistan); Muhammad Shafiq (University of Engineering and Technology Taxila, Pakistan); Matteo Savino (University of Sannio, Italy)

M1530-G2: Product Development 1 (Zurich B)
Chair: Christopher O’Brien
Nottingham University (United Kingdom)

A Survey on Sustainable Product Development
Pedro Marques (Universidade Lusófona, Portugal); M. Januario Charmier (DREAMS, Portugal); José Oliveira Santos (Universidade Lusófona, Portugal)
Crowd-Engineering - Approach for Smart and Agile Product Development in Networks
Frauke Adam (University of Stuttgart, Germany); Michael Hertwig (Fraunhofer-Institute for Industrial Engineering IAO, Germany); Adrian Barwasser (University of Stuttgart, Germany); Joachim Lentes (Fraunhofer Institute for Industrial Engineering IAO, Germany); Nikolaus Zimmermann (Fraunhofer-Institute for Industrial Engineering IAO, Germany); Maik Siee (Fraunhofer IPA, Germany)

Adding Sustainability to Lean Product Development
João Paulo Estevam de Souza (University of Glasgow & Instituto Nacional de Pesquisas Espaciais, Brazil); Rob Dekkers (University of Glasgow, United Kingdom (Great Britain))

Effect of Supplier Selection Regulations on New Product Design
Elif Gunay (Sakarya University, Turkey); Gul Kremer (Iowa State, USA); Kijung Park (Incheon National University, Korea)

The Front-End of Product Development as Systems Thinking and Predictive Learning
Charles Yamamura, Celma Ribeiro, Jose Quintanilha, Fernando Berssaneti, and Denise Dantas (University of Sao Paulo, Brazil)

M1530-V1: Digital and Cyber Manufacturing 3 (Zurich C)
Chair: Bastian Pokorni
Fraunhofer Institute for Industrial Engineering (Germany)

Bidirectional Interoperability of Product Engineering and Manufacturing Enhancing Mass Customization
Anna Sakowski (University of Stuttgart IAT, Germany); Manfred Dannengmayer and Dieter Spath (University of Stuttgart, Germany & Fraunhofer IAO, Germany); Michael Hertwig (Fraunhofer-Institute for Industrial Engineering IAO, Germany)

Toward a Real-Time Reconfiguration of Self-Adaptive Smart Assembly Systems
Marco Bortolini, Riccardo Accorsi and Francesco Pilati (University of Bologna, Italy); Maurizio Faccio and Francesco Gabriele Galizia (University of Padova, Italy)

Generating Smooth Trajectories in Local Path Planning for Automated Guided Vehicles in Production
Tonja Heinemann, Armin Lechler and Oliver H. Riedel (University of Stuttgart, Germany)

Classification Approach for Use Cases Within a Demonstration Factory Environment
Stefanie Findeisen (University of Stuttgart, Germany); Laura Körtig, Simon Schmacher and Tobias Eusterwienmann (Fraunhofer Institute for Manufacturing Engineering and Automation, Germany); Moritz Hämmerle and Bastian Pokorni (Fraunhofer Institute for Industrial Engineering IAO, Germany)

*The Development of a Remote Real-time HMI for a Motion Control System
Youqiu You and Jesus Pagan (Ohio University, USA)

M1530-V2: Manufacturing Strategy 3 (Zurich E)
Chair: Veli Matti Virolainen
Lappeenranta University of Technology (Finland)

A Content Analysis on Efficiency Frontier Identification and Operations Strategy
Gabriela Veiga (Pontifical Catholic University of Paraná, Brazil); Edson Pinheiro de Lima and Sergio E. Gouvea da Costa (Federal University of Technology - Parana, Brazil)
Formulation of a Manufacturing Strategy Using the House of Quality
Astrid Oddershede, Luis Ernesto Quezada, Juan Valenzuela and Pedro Palominos (University of Santiago of Chile, Chile); Hector Lopez-Ospina (Universidad del Norte, Colombia)

A Method for Smart Manufacturing Capabilities and Performance Measurement
Qing Xia, Chuan Yang, Chunxu Jiang, Xuesong Zheng, Xu Pan, Yong Shuai and Shengjun Yuan (Chongqing CEPREI Industrial Technology Research Institute, P.R. China)

Sustainability Versus Efficiency of Manufacturing Process: Structured Comparison of Two High Precision Fine Grinding Processes
Max Radetzky, Lars Grams and Stefan Bracke (University of Wuppertal, Germany); Berna Ulutas (Eskisehir Osmangazi University, Turkey)

A Proposal for the Support of Demand Required from Production Through the Alignment of Production Planning and Control Strategies and Maintenance Planning and Control: An Analytical Approach
Alexandre Sanches (Pontifical Catholic University of Parana - PUCPR &; Federal Institute of Parana - IFPR, Brazil); Lourival Souza (Pontifical Catholic University of Parana, Brazil); Sergio E. Gouvea da Costa (Pontifical Catholic University of Parana &; Federal University of Technology - Parana, Brazil); Edson Pinheiro de Lima (Pontifical Catholic University of Parana &; Federal University of Technology - Parana, Brazil)

M1530-V3: Additive Manufacturing – Scheduling & Processes (Zurich F)
Chair: Ibrahim Tansel
Florida International university (USA)

3D Printer Scheduling for Shortest Time Production of Weapon Parts
Soo Chan Kim, Minsu Kim and Namsu Ahn (Korea Military Academy, Korea)

Impact of Scheduling Policies on the Performance of an Additive Manufacturing Production System
Maaz Saleem Kapadia, Binil Starly, Alec Thomas, Reha Uzsoy, and Donald Warsing (North Carolina State University, USA)

Tool Path Planning Optimization for Multi-Tool Additive Manufacturing
Hieu Bui, Harry Pierson, Sarah Nurre and Kelly Sullivan (University of Arkansas, USA)

Compressive Force Location Estimation with SuRE Method for Additively Manufactured Parts
Ahmed Fathy Mohamed, Kumar Y Shah and Ibrahim Tansel (Florida International University, USA)

Analysis of Requirements Potentials and Risks Caused by Using Additive Manufacturing
Nikolas Zimmermann and Joachim Lentes (Fraunhofer Institute for Industrial Engineering IAO, Germany); Andreas Werner (University of Stuttgart IAT, Germany)

M1530-V4: Energy Efficient Scheduling 1 (Zurich G)
Chair: M. Fatih Tasgetiren
Istinye University (Turkey)

An Artificial Bee Colony Algorithm for Distributed Hybrid Flowshop Scheduling Problem
Yingli Li, Fan Li, Liang Gao (Huazhong University of Science and Technology, China) Quan-Ke Pan (Shanghai University, China) M. Fatih Tasgetiren (Istinye University, Turkey)
Multi-Objective Flexible Job Shop Scheduling Problem Considering Machine Switching Off-On Operation
Qihao Liu, Liang Gao and Xinyu Li (Huazhong University of Science and Technology, P.R. China); Quan-Ke Pan (Shanghai University, P.R. China);

An Ensemble of Meta-Heuristics for the Energy-Efficient Blocking Flowshop Scheduling Problem
Damla Kizilay (Yasar University, Turkey); M. Fatih Tasgetiren (Istinye University, Turkey & Huazhong University of Science and Technology, P.R. China); Quan-Ke Pan (Huazhong University of Science and Technology, P.R. China); Gürsel Süer (Ohio University, USA)

A Variable Iterated Local Search Algorithm for Energy-Efficient No-Idle Flowshop Scheduling Problem
M. Fatih Tasgetiren (Istinye University, Turkey & Huazhong University of Science and Technology, China); Hande Öztöp (Yasar University, Turkey); Liang Gao and Xinyu Li (Huazhong University of Science and Technology, P.R. China); Quan-Ke Pan (Shanghai University, P.R. China)

4:45 p.m. – 5:00 p.m. Stretch Break
5:00 p.m. – 6:00 p.m. Concurrent Technical Sessions

M1700-G1: Industrial Logistics 2 (Zurich A)
Chair: Ilenia Zennaro
University of Padua (Italy)

Analysis of Possible Discrepancies Between the Public Transport Offer and Customers' Expectations
Grzegorz Gramza, Monika Kosacka (Poznan University of Technology, Poland)

Part Feeding Optimization for Fixed-Position Assembly Systems of Big Size Products
Ilenia Zennaro, Martina Calzavara, Serena Finco, Daria Battini and Alessandro Persona (University of Padua, Italy)

Period-Aggregated Resource Leveling Problem with Flexible Human Resource Usage and Variable Job Duration
Ilia Tarasov (ISAE-SUPAERO, University of Toulouse, France & V. A. Trapeznikov Institute of Control Sciences of Russian Academy of Sciences, Russia); Alain Hait and Olga Battaia (ISAE-SUPAERO, Universite de Toulouse, France)

Age Management of Industrial Workers Based on the Multiple Decrement Modelling
Barbara Grah, Vlado Dimovski and Simon Colnar (University of Ljubljana, Slovenia); David Bogataj (University of Padova, Italy)

M1700-G2: Product Development 2 (Zurich B)
Chair: Gul Kremer
Iowa State (USA)

Proposing the Law of Continuous Innovation
Rob Dekkers (University of Glasgow, United Kingdom (Great Britain)); Eduardo Gomes Salgado (Federal University of Alfenas, Brazil)
Development of a Strategic Business Model Framework for Multi-Sided Platforms to Ensure Sustainable Innovation in Small and Medium-Sized Enterprises
Kira Daxhammer and Maximilian Doerr (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany); Michael Luckert and Thomas Bauernhansl (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany & Institute of Industrial Manufacturing and Management IFF, Germany)

Strategic Elements in Product Innovation in Industrial Firms
Cristina Feniser and Daniela Popescu (Technical University of Cluj-Napoca, Romania); Arik Sadeh (HIT Holon Institute of Technology, Israel)

M1700-V1: Cyber Physical Systems 1 (Zurich C)
Chair: He (Herman) Tang
Eastern Michigan University (USA)

Armor PLC: A Platform for Cyber Security Threats Assessments for PLCs
Wenhui Zhang, Srivatsa Srinivassa, Asmit De, Swaroop Ghosh, Peng Liu (Pennsylvania State University, USA); Yizheng Jiao (University of North Carolina at Chapel Hill, USA); Dazhong Wu (University of Central Florida, USA)

Linking Cyber Security Improvement Actions in Healthcare Systems to Their Strategic Improvement Needs
Miryam Barad (Tel Aviv University, Israel)

A Realization of Cyber-Physical Manufacturing Control Systems Through Industrial Internet of Things
Yu-Ju Lin, Ci-Bin Lan and Chin-Yin Huang (Tunghai University, Taiwan)

Using Cyber PLC to Link Physical Operations with Cyber Control Decisions
Yu-Ju Lin, Yao-Hsiang Lin and Chin-Yin Huang (Tunghai University, Taiwan)

M1700-V2: Hybrid & Cellular Manufacturing 1 (Zurich E)
Chair: Venkataramanaiah Saddikuti
Indian Institute of Management (India)

Flexible Flowshop Design in Cellular Manufacturing Systems
Najat Almasarwah and Gursel Suer (Ohio University, USA)

NSGA Based Algorithm for Energy Efficient Scheduling in Cellular Manufacturing
Venkataramanaiah Saddikuti (Indian Institute of Management, Lucknow, India); Vigneshwar Pesaru (FICO-Bangalore, India)

Mitigating the Effects of Bottlenecks in Wagon Manufacturing
Furkan Uludag, Yahya Olabi and Elif Gunay (Sakarya University, Turkey); Gul Kremer (Iowa State, USA)
Automatic Feature-Based Point Cloud Alignment and Inspection
Yu Jin, Harry Pierson and Haitao Liao (University of Arkansas, USA)

Additively Manufactured Multi-Material Parts with Defect Detection Capabilities
Kumar Y Shah, Ahmed Fathy Mohamed, Ibrahim Tansel (Florida International University, USA)

*Volumetric Data Analysis for Inspection of 3D Printed Parts
Zhaoqiang Geng and Bopaya Bidanda (University of Pittsburgh, USA)

The Potential of Reusing Technical Plastics
Juha Varis, Vardaan Chauhan and Timo Kärki (LUT University, Finland)

Fabrication and Characterization of AlxCrCuFeNi2 High-Entropy Alloys Coatings by Laser Metal Deposition
Wenyuan Cui, Lan Li, Xinchang Zhang, Yitao Chen, Tan Pan and Frank Liou (Missouri University of Science and Technology, USA)

An Effective Multi-Objective Artificial Bee Colony Algorithm for Energy Efficient Distributed Job Shop Scheduling
Jin Xie, Liang Gao and Quan-ke Pan (Huazhong University of Science and Technology, P.R. China); M. Fatih Tasgetiren (Istinye University, Turkey)

The Biological Transformation of Energy Supply and Storage - Technologies and Scenarios for Biointelligent Value Creation
Johannes Full, Robert Miehe, Thomas Bauerhansl, Alexander Sauer and Steffen Kiemel (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany)

A Memetic Algorithm for the Bi-Objective Quadratic Assignment Problem
Cemre Cubukcuoglu (Delft University of Technology &; Yasar University, Turkey); M. Fatih Tasgetiren (Istinye University, Turkey &; Huazhong University of Science and Technology, P.R. China); I. Sevil Sariyildiz (Delft University of Technology, The Netherlands); Liang Gao (Huazhong University of Science and Technology, P.R. China); Murat Kucukvar (Qatar University, Turkey)

A Discrete Artificial Bee Colony Algorithm for the Energy-Efficient No-Wait Flowshop Scheduling Problem
M. Fatih Tasgetiren (Istinye University, Turkey & Huazhong University of Science and Technology, China); Damla Yüksel (Yasar University, Turkey); Liang Gao and Peigen Li (Huazhong University of Science and Technology, P.R. China); Quan-Ke Pan (Shanghai University, P.R. China)
Tuesday, August 13, 2019

7:00 a.m.  Registration Desk Open
7:00 a.m.  Continental Breakfast  (Preconvene)

8:00 a.m. – 10:00 a.m.  Opening Plenary Session  (Zurich D)

Keynote Speakers:
Mr. Anthony Schiml, Production Program Senior Manager, F-35 Wing
Dr. Don A. Kinard, Sr. Fellow, Production Operations
Lockheed Martin Aeronautics (USA)

Presentation Title: The Future of the Digital Thread

Panel – Future of the Manufacturing World
Panelist:
Lex Tisdale, Director of Engineering Manufacturing, Kenworth (USA)
Ron Askim, Professor, Arizona State University (USA)
Fatih Tasgetiren, Professor, Yasar University (Turkey)
Michael Giuliano, Consultant (USA)
Gursel Suer, Professor, Ohio University (USA)

10:00 a.m. – 10:30 p.m.  Refreshment Break  (Preconvene)

10:30 a.m. – 12:00 p.m.  Concurrent Technical Sessions

T1030-G1: Semantic Integration and KB Systems 1  (Zurich A)
Chair: Biao Yang
University of Sussex Business School (United Kingdom)

Knowledge Reasoning for Intelligent Manufacturing Control System
Yu-Ju Lin, Zheng-Xian Chen and Chin-Yin Huang (Tunghai University, Taiwan)

Optimal Assembly Line Feeding Mode Selection: A Machine Learning Approach
Francesco Zangaro (Technical University of Munich, Germany &; University of Padua, Italy); Stefan Minner (Technical University of Munich, Germany); Daria Battini (University of Padua, Italy)

Ontology Model for Process Level Capabilities of Manufacturing Resources
Dusan N Sormaz and Arkopaul Sarkar (Ohio University, USA)

*Measuring the Usage of a Manufacturing Ontology
David Koonce (Ohio University, USA)

Dissemination and Communication of Lessons Learned for Project-Based Business with the Applications of Information Technology a Case Study with a British Manufacturer
Ying Yang and Gina Brosch (University of Newcastle, United Kingdom (Great Britain)); Biao Yang (University of Sussex, United Kingdom (Great Britain))
Comparison of the Influence of Self-Driving Technology Brand Name on Purchase Intention Between Japan and the US
Takumi Kato (Honda Motor Co., Ltd., Japan)

Development of Educational Programs for System Creators and Business Producers in Future Strategy Design in Action Project Group Activities Through Industry-University Cooperation
Kinya Tamaki (Aoyama Gakuin University, Japan); Masahiro Arakawa (Nagoya Institute of Technology, Japan); Maki Arame (Polytechnic University, Japan); Yoshiyuki Ono (AOYAMA Human Innovation Consulting, Inc., Japan)

Certification of Openness - Corner Stone of an Agile PLM Strategy
Michael Hertwig and Joachim Lentes (Fraunhofer Institute for Industrial Engineering IAO, Germany); Dietmar Trippner (drei Consult GbR, Germany)

Applied Description of Steel Properties for Improved Component Function - Foundation for Commercial Value Assessment
Claes Lowgren and Veikko Orpana (Lappeenranta University of Technology Finland)

The Impact of Inter-Organizational Cooperation on R&D Expenditure of Manufacturing Companies
Bojan Lalic, Tanja Todorovic, Nenad Medic, Branislav Bogojevic, Danijela Ciric and Uglješa Marjanović (University of Novi Sad, Faculty of Technical Sciences, Serbia)

Agile vs. Traditional Approach in Project Management: Strategies, Challenges and Reasons to Introduce Agile
Danijela Ciric, Bojan Lalic, Danijela Gracanin, Milan Delic, Nemanja Tasic and Nenad Medic (University of Novi Sad, Serbia)

Movable Unmanned Aerial System Optimization of System Resource Design and Drone Routing
Byung Duk Song (Kyung Hee University, Korea); Ho Young Jeong, Sungbum Jun and Seokcheon Lee (Purdue University, USA)

Optimization of Vehicle-Carrier Routing Mathematical Model and Comparison with Related Routing Models
Ho Young Jeong and Seokcheon Lee (Purdue University, USA)

Vehicle Routing Problem with Drones Last Mile Delivery
Patchara Kitjacharoenchai and Seokcheon Lee (Purdue University, USA)

*Massive Vehicle Fleet Control for Mass Customizable Production Line with Artificial Intelligence (AI) and Cyber Physical System (CPS) Technologies
Illhoe Hwang, Sang Pyo Hong and Young Jae Jang (Korea Advanced Institute of Science and Technology, Korea)

Optimal Path Planning for Image Based Visual Servoing
Mark Allen, Ethan Wescoat, and Laine Mears (Clemson University, USA)
Advancing Cyber-Physical Systems Resilience: The Effects of Evolving Disruptions
Win Nguyen (Purdue University & PRISM Center, USA); Ashwin Nair and Shimon Nof (Purdue University, USA)

T1030-V2: Hybrid & Cellular Manufacturing 2 (Zurich E)
Chair: Mariana Dias
Universidade do Minho (Portugal)

Development of ICT and IoT System Aiming at Promotion of Productivity and Product Quality in Multiple Handling Skilled Works
Masahiro Arakawa and Yoshihiro Matsuda (Nagoya Institute of Technology, Japan); Tomohiro Kawai (Murata Manufacturing Company, Japan)

Comparative Analysis of Cell Formation Algorithms with Alternative Routings
Dusan N Sormaz and Nayan Chakrabarty (Ohio University, USA)

Reusing Equipment in Cells Reconfiguration for a Lean and Sustainable Production
Mariana Dias and Maria Inês Araújo (Bosch company, Portugal); Anabela Alves, Isabel Lopes and Senhorinha Teixeira (University of Minho, Portugal)

Modified P-Median Model with Minimum Threshold for Average Family Similarity
Omar Alhawari and Gursel Suer (Ohio University, USA)

*A Geometrically-Intelligent Non-Dominated Sorting Algorithm for Efficient Cyber-Physical System Optimization Processes
Samuel A. Vanfossan (Missouri University of Science and Technology, USA)

T1030-V3: IE & OR – Assembly Line (Zurich F)
Chair: TBA

Optimization via Computer Simulation of a Mixed Assembly Line of Wooden Furniture - A Case Study
Karim Nouri and Georges Abdul-Nour (Université du Québec À Trois-Rivières, Canada)

Analysis of the Effects of Group Size and Learning on Manual Assembly Performance
Jaakko Peltokorpi and Esko Niemi (Aalto University, Finland)

Defining Flexibility of Assembly Workstations Through the Underlying Dimensions and Impacting Drivers
Lauren Van De Ginste, Matthias Schamp, Arno Claeys, Steven Hoedt, Karel Bauters, Alessandro Biondi, El-Houssaine Aghezzaf, Johannes Cottyn (Ghent University & Flanders Make, Belgium); Jan Goos (Flanders Make, Belgium);

The Effect of Job Similarity on Forgetting in Multi-Task Production
Steven Hoedt, Arno Claeys, Matthias Schamp, Lauren Van De Ginste, El-Houssaine Aghezzaf and Johannes Cottyn (Ghent University & Flanders Make, Belgium);
Determination of Shipping Timing in Logistics Warehouse Considering Shortage and Disposal in Textile Industry
Rina Tanaka, Aya Ishigaki and Tomomichi Suzuki (Tokyo University of Science, Japan); Masato Hamada and Wataru Kawai (Data-Chef Co., Ltd., Japan)

Sustainable Implementation Success Factors of AGVs in the Brazilian Industry Supply Chain Management
Guilherme Teixeira Aguiar and Gilson Adamczuk Oliveira (Universidade Tecnológica Federal do Paraná, Brazil); Nikolai Kazantsev (Alliance Manchester Business School University of Manchester, United Kingdom); Dalmarino Setti (Universidade Tecnológica Federal do Paraná, Brazil); Kim Hua Tan (Nottingham University Business School, University of Nottingham, United Kingdom)

Enhancing the Competitiveness of Container Seaports Through Sustainability: A Case Study of Thailand
Notthamon Kannika, Kim Hua Tan and Kulwant Pawar (University of Nottingham, United Kingdom (Great Britain))

Problem of Disassembly-To-Order System for Recycling Rate and Profit Using Linear Physical Programming
Yuki Kinoshita and Tetsuo Yamada (The University of Electro-Communications, Japan); S Gupta (Northeastern University, USA)

An Optimization Problem in a Closed-Loop Manufacturing System with Stochastic Variability
Kimitoshi Sato and Zheng Cong (Kanagawa University, Japan); Kenichi Nakashima (Waseda University, Japan)

Multi-Period Supply Planning Problem Under a Dynamic Demand, Stochastic Lead Time and a Supplier Selection
Oussama Ben-Ammar (IMT Atlantique &; LS2N, France); Belgacem Bettayeb (LINEACT CESI, France); Alexandre Dolgui (IMT Atlantique &; LS2N, France)

12:00 p.m. – 1:30 p.m. Lunch break (on your own)
1:30 p.m. – 3:00 p.m. Concurrent Technical Sessions

Ontology-based Manufacturing Control Systems (MCS)
Yu-Ju Lin, Yao-Yu Hsieh and Chin-Yin Huang (Tunghai University, Taiwan)

*Role of Ontologies in Development of Smart Manufacturing Systems for Industry 4.0
Dusan N Sormaz and Arkopaul Sarkar (Ohio University, USA)
Use of Promethee Method for Decision Making in Bus Fleet Maintenance Proposal of Framework
Alexandre Sanches (Pontifical Catholic University of Paraná - PUCPR & Federal Institute of Paraná - IFPR, Brazil); Eduardo Loures (Pontifical Catholic University of Paraná-Pr, Brazil); Edson Pinheiro de Lima (Pontifical Catholic University of Paraná & Federal University of Technology - Parana, Brazil)

Intelligent Authoring and Management System for Assembly Instructions
Arno Claeys, Steven Hoedt, Lauren Van De Ginste and Matthias Schamp (Ghent University & Industrial Systems Engineering Flanders Make, Belgium); Georges Verpoorten (ProductionS Core Lab Flanders Make, Belgium); El-Houssaine Aghezzaf and Johannes Cottyn (Ghent University & Industrial Systems Engineering Flanders Make, Belgium)

T1330-V1: Cyber Physical Systems 3  
Chair: TBA  

Model Predictive Control of Blood Glucose for Type 1 Diabetic Rats in a Cyber-Physical System
Hoo Sang Ko, Guney Uzun, Felix Lee and Guim Kwon (Southern Illinois University Edwardsville, USA); Ramin Balouchzadeh (Washington University in St. Louis, USA); Sarah Park (Duke University, USA)

3D Medical Image Classification with Depthwise Separable Networks
Haifeng Wang, Qianqian Zhang and Hongya Lu, Daehan Won, and Sang Won Yoon (State University of New York at Binghamton, USA)

Development of Classification Models for Assessment of Endotracheal Intubation Training by a Cyber-Physical System
Chiho Lim, Hoo Sang Ko and Sohyung Cho (Southern Illinois University Edwardsville, USA); Ikechukwu Ohu and Babatunde Jimmy (Gannon University, USA); Henry Wang (University of Texas Health Science Center at Houston, USA); Jordan Felice (Lake Erie College of Osteopathic Medicine, USA); Russell Griffin (American Heart Association, USA); Jestin Carlson (Gannon University, USA)

Lung Nodule Diagnosis on 3D Computed Tomography Images Using Deep Convolutional Neural Networks
Qianqian Zhang, Haifeng Wang, Sang Won Yoon, Daehan Won, and Krishnaswami Srihari (State University of New York at Binghamton, USA)

Data-Driven Simulation Model of Operating Rooms in Hospital
Dusan N Sormaz and Mandvi Malik (Ohio University, USA)

A Demand-to-Supply Enterprise Robot and Its ODICS II Type for Convenience Store Application
Masayuki Matsui and Nobuaki Ishii (Kanagawa University, Japan)

T1330-V2: Hybrid & Cellular Manufacturing 3  
Chair: Yong Yin  
Doshisha University (Japan)

Development of Optimal Algorithm to Decide the Operation Order for Parts Assembly in Order to Minimize Work Difficulty
Masahiro Arakawa (Nagoya Institute of Technology, Japan); Yukiko Kanbara (Aisin AW, Japan)
A Hierarchical Hybrid Heuristic-Optimization Approach for Multi-Product Assembly Line Design Problem
Gursel Suer, Roohollah Younes Sinaki and Azadeh Sadeghi (Ohio University, USA)
Towards Designing Smart Manufacturing Systems for Industry 4.0 Considering Reconfiguration
Ibrahim Garbie (Helwan University, Egypt)
A Dynamic Switching Policy with Thresholds of Inventory Level and Waiting Orders for MTS/MTO Hybrid Production Systems
Katsuhiko Takahashi, Shuhei Yano, Keisuke Nagasawa and Katsumi Morikawa (Hiroshima University, Japan)
*How to Achieve Maximum Throughput for a Divisional Seru
Yong Yin (Doshisha University, Japan)

T1330-V3: IE & OR – Supply Chain and Logistics (Zurich F)
Chair: Golany Boaz
Israel Institute of Technology (Israel)

Supply Planning and Inventory Control of Perishable Products Under Lead-Time Uncertainty and Service Level Constraints
Sandra Transchel and Ole Hansen (Kuehne Logistics University, Germany)
Optimizing Spares in a Multiple Location Facility with Periodic Review
Yahel Giat and Michael Dreyfuss (Jerusalem College of Technology, Israel)
Optimizing Retrieving Performance of an Automated Warehouse for Unconventional Stock Keeping Units
Massimo Bertolini, Giovanni Esposito, Davide Mezzogori and Mattia Neroni (University of Parma, Italy)
Applying Text-mining Techniques to Global Supply Chain Region Selection: Considering Geographic Differences
Chih-Yuan Chu and Gul Kremer (Iowa State University, USA); Kijung Park (Incheon National University, Korea)
*Scalable Heuristics for P-Median Problem on Real Road Networks
Saeed Ghanbartehrani and Mahnoush Samadi Dinani (Ohio University, USA)
Traveling Salesman Problem with Hotel Selection: Comparative Study of the Alternative Mathematical Formulations
Cemal Aykut Gencel and Baris Kececi (Başkent University, Turkey)

T1330-V4: Sustainable Supply Chain 2 (Zurich G)
Chair: Ruwen Qin
Missouri University of Science and Technology (USA)

Adaptive Storage Reassignment in Order Picking Systems to Picker Learning and Change of Demand
Ayumi Ogasawara, Aya Ishigaki and Seiichi Yasui (Tokyo University of Science, Japan)
Strategic Human Resource Management Simulation Considering Work Elements, Skills, Learning and Forgetting
Takayuki Kataoka (Kindai University, Japan); Katsumi Morikawa and Katsuhiko Takahashi (Hiroshima University, Japan)

A Study on the Effect of Defect Shape on Defect Detection in Visual Inspection
Ryosuke Nakajima (The University of Electro-Communications, Japan); Riho Yamamoto, Takuya Hida and Toshiyuki Matsumoto (Aoyama Gakuin University, Japan)

Linear Physical Programming Iteration Method of Multi-Player Multi-Objective Decision Making in Supply Chain
Tomoaki Yatsuka and Aya Ishigaki (Tokyo University of Science, Japan); Yuki Kinoshita and Tetsuo Yamada (The University of Electro-Communications, Japan); Masato Inoue (Meiji University, Japan)

Sustainability and Corporate Social Responsibility in Closed Loop Supply Chain
Keisuke Nagasawa, Katsumi Morikawa and Katsuhiko Takahashi (Hiroshima University, Japan); Daisuke Hirotani (Prefectural University of Hiroshima, Japan)

T1330-G2: Tutorial (Zurich B)
Enhancing Hybrid Genetic Algorithms with ML & GPU for Scheduling Problems – Case Studies
Presenters:
Mitsuo Gen, Tokyo University of Science and Fuzzy Logic Systems Institute (Japan)
Gursel Suer, Ohio University (USA)

3:00 p.m. – 3:30 p.m. Refreshment Break
3:30 p.m. – 4:45 p.m. Concurrent Technical Sessions

T1530-G1: Data Analytics 1 (Zurich A)
Chair: Joanna Oleskow-Szlapka
Poznan University of Technology (Poland)

Logistics 4.0 Maturity Levels Assessed Based on GDM (Grey Decision Model) and Artificial Intelligence in Logistics 4.0 - Trends and Future Perspective
Joanna Oleśków Szłapka, Roman Domański and Hubert Wojciechowski (Poznan University of Technology, Poland)

Approach for a Holistic Predictive Maintenance Strategy by Incorporating a Digital Twin
Andreas Werner (University of Stuttgart IAT, Institute of Human Factors and Technology Management, Germany); Nikolas Zimmermann and Joachim Lentes (Fraunhofer-Institute for Industrial Engineering IAO, Germany)

A Fuzzy Model of Selecting Supplier Based on Process Quality with Consideration of Imprecise Data
Kuen-Suan Chen (National Chin-Yi University of Technology, Taiwan); Tsang-Chuan Chang (National Taichung University of Science and Technology, Taiwan)

Multivariate Data Analytics in Surface Topography Assessments Case Study High Precision Fine Grinding Processes
Stefan Bracke, Sebastian Sochacki and Max Radetzky (University of Wuppertal, Germany)
Simulation and Analysis of Preventive Maintenance Scheduling Techniques for Fruit-Roll Packaging Line
Ragini Waman Joshi, Animek Shaurya, Pankhuri Arora and Weihong (Grace) Guo (Rutgers, the State University of New Jersey, USA); Qi Tian (Rutgers, the State University of New Jersey, USA and Dalian University of Technology, China)

T1530-V1: Cyber Physical Systems 4  
Chair: Win Nguyen  
Purdue University (USA)

Intelligent Manufacturing Control Systems: The Core of Smart Factory
Yu-Ju Lin, Shih-Hsuan Wei and Chin-Yin Huang (Tunghai University, Taiwan)
Integration of Logic Controller with IoT to Form a Manufacturing Edge Computing Environment: A Premise
Yu-Ju Lin, Chih-Fan Tan and Chin-Yin Huang (Tunghai University, Taiwan)
Hybrid Robotic Reinforcement Learning for Inspection/Correction Tasks
Hoda Nasereddin and Gerald Knapp (Louisiana State University, USA)
The HUB-CI Model for Networked Telerobotics in Greenhouse Monitoring
Ashwin Nair and Shimon Nof (Purdue University, USA); Avital Bechar (The Institute of Agriculture Engineering, Israel); Yang Tao (Bio-Imaging and Machine Vision Lab, University of Maryland, USA)
A 3D Convolutional Neural Network for Volumetric Image Semantic Segmentation
Hongya Lu, Haifeng Wang, Qianqian Zhang, Sang Won Yoon, Daehan Won (Binghamton University, USA)
Collaborative Response to Disruption Propagation with Established Lines of Collaboration (CRDP/ESLOC) in Cyber-Physical Systems: Informatics for Decision Support
Win Nguyen and Shimon Nof (Purdue University & PRISM Center, USA)

T1530-V2: Seru Production System  
Chair: Ikou Kaku  
Tokyo City University & Association of Asian Management Science & Applications (Japan)

A Novel S-F Seru Production Scheme
Ikou Kaku (Tokyo City University, Japan)
*Impact of Layered Design on Seru and Assembly Line
Azadeh Sadeghi and Gursel Suer (Ohio University, USA); Yong Yin (Doshisha University, Japan); Ikou Kaku (Tokyo City University & Association of Asian Management Science and Applications, Japan)
Case Studies on Design for Seru Manufacturing
Jian Wang, Nana Ye and Yunfang Peng (Shanghai University, P.R. China)
Considering Product Life Cycle Stages and Worker Skill Level in Seru Production Systems
Gursel Suer (Ohio University, USA); Berna Ulutas (Eskisehir Osmangazi University, Turkey); Ikou Kaku (Tokyo City University, Japan); Yong Yin (Doshisha University, Japan)
*Research Opportunities for Seru Production Systems
Yong Yin (Doshisha University, Japan)
Indoor Flow Line Measurement Method Based on Radio Waves and Ultrasonic Sensors
XiaoWen Zhao, Shuyu Liang, Yasuhiro Kajihara and Hisashi Yamamoto (Tokyo Metropolitan University, Japan)

Development and Evaluation of a Design Thinking Process Adapted to Frugal Production Systems for Emerging Markets
Uwe Schleinkofer (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany); Thorsten Herrmann, Ina Maier and Daniel Roth (University of Stuttgart, Germany); Thomas Bauernhansl (Fraunhofer Institute for Manufacturing Engineering and Automation IPA &; University of Stuttgart, Germany) Dieter Spath (University of Stuttgart &; Fraunhofer Institute for Industrial Engineering IAO, Germany)

Optimizing Mean and Variance of Multiresponse in a Multistage Manufacturing Process Using a Patient Rule Induction Method
Dong-Hee Lee (Hanyang University, Korea); Kwang-Jae Kim (Pohang University of Science and Technology, Korea)

Fixed Cost Management as an Enabler for Agile Manufacturing Networks
Günther Schuh, Jan-Philipp Prote, Andreas Guetzlaff, Julian Ays and Angelina Donner (RWTH Aachen University, Germany)

Progressive Die Cost Estimation Based on Lamination Design and Production Scenario in the Electric Traction Motor Application
Jing Zhang (CR/RTC2 Ap Bosch, China &; Graduate School of Excellence advanced Manufacturing Engineering, Germany); Dieter Spath (University of Stuttgart, Germany)

A Maturity Assessment Procedure Model for Realizing Knowledge-Based Maintenance Strategies in Smart Manufacturing Enterprises
Tanja Nemeth (Fraunhofer Austria Research GmbH, Austria); Fazel Ansari and Wilfried Sihn (Vienna University of Technology &; Fraunhofer Austria, Austria)

Implementation of Bayesian Belief Network in Productivity Benchmarking of Manufacturing Industry
Bolun Liang and Guoqing Zhang (University of Windsor, Canada); Golam Kabir (University of Regina, Canada)

*Manufacturing Sustainability Readiness of Emerging Economies for Industry 4.0
Bulent Erenay (Wilkes University, USA); Gokhan Egilmez (University of New Haven, USA)

DC Micro Grid for Energy Efficient and Flexible Production
Sebastian Weckmann (Universität Stuttgart, Germany); Alexander Sauer (Fraunhoder IPA, Germany)
Homogeneity Aspects on Sustainability Disclosure: A Study on OCEPAR, Brazil
Oldair Roberto Giasson, Edson Pinheiro de Lima, and Sergio Eduardo Gouvea da Costa (Federal University of Technology, Parana & Pontifical Catholic University of Parana, Brazil) Gilson Adamczuk Oliveira and Abdinardo Moreira Barreto de Oliveira (Federal University of Technology, Parana, Brazil)

T1530-G2: Tutorial
Digital Transformation in Manufacturing – Industry Practice Case
Presenter:
Illhoe Hwang
Korea Advanced Institute of Science and Technology (Korea)

6:30 p.m. – 9:00 p.m. Conference Banquet & Awards
Banquet Speaker: Barry Smith, Professor, SUNY Buffalo (USA)
Presentation Title: What is a Cyber-Physical System?

Wednesday, August 14, 2019

7:00 a.m. Registration Desk Open
7:00 a.m. Continental Breakfast (Preconvene)

8:00 a.m. – 10:00 a.m. Plenary Session (Zurich D)
Keynote Speaker:
Emily Jerger, Project Engineer
MxD, the Digital Manufacturing Institute
Presentation Title: From Pilot to Production

Editorial Panel
Panelist:
Dr. Rob Dekkers, IFPR Editorial Panel
Dr. Chin-Yin Huang, IFPR Editorial Panel
Dr. Alexandre Dolgui, International Journal of Production Research
Dr. Stefan Minner, International Journal of Production Economics
Dr. Andrew Kusiak, Journal of Intelligent Manufacturing
Dr. Yong Yin, Asian Journal of Management Science and Application

10:00 a.m. – 10:30 a.m. Refreshment Break (Preconvene)

10:30 a.m. – 12:00 p.m. Concurrent Technical Sessions
W1030-G1: Data Analytics 2

Chair: Veikko Orpana

Lappeenranta University of Technology Finland (Sweden)

Manufacturing Pharmaceutical Medicines in a Regulated Environment - an Auditors Perspective
Ian Flawn Orpana (Goethe-University Frankfurt, Germany and Verto Pharma AB, Sweden)

Simulation-based Analysis of Train Speed for Single-Track Railway Scheduling
Vidita Gawade and WeiHong Guo (Rutgers, the State University of New Jersey, USA); Qi Tian (Rutgers, the State University of New Jersey, USA and Dalian University of Technology, China)

Local Recurrence Rates with Automatic Time Windows for Discord Search in Multivariate Time Series
Chao-Lung Yang, Darwin Frederik and Hendri Sutrisno (National Taiwan University of Science and Technology, Taiwan)

Study on Travel Frequency Patterns of Public Bike Systems and Bike Sharing Systems
Lingyu Meng (Texas State University, USA); Zhiyuan Liu (Southeast University, P.R. China); Zhijie Dong (Texas State University, USA)

An Entity Embeddings Deep Learning Approach for Demand Forecast of Highly Differentiated Products
Davide Mezzogori and Francesco Zammori (University of Parma, Italy)

W1030-V1: Cloud-Based Manufacturing

Chair: Mohsen Moghaddam

Northeastern University (USA)

Challenges and Opportunities for Publishing IIoT Data in Manufacturing as a Service Business
Joaquin Ordieres-Meré (Universidad Politécnica de Madrid, Spain); Javier Villalba-Diez (Universidad Politécnica de Madrid, Spain and Fakultät für Mangement und Vertrieb, Campus Schwäbisch-Hall, Hochschule Heilbronn, Germany); Xiaochen Zheng (Universidad Politécnica de Madrid, Spain)

Design of Marketplaces for Smart Manufacturing Services
Mohsen Moghaddam (Northeastern University, USA); Albert Jones (National Institute of Standards & Technology, USA); Thorsten Wuest (West Virginia University, USA)

Sang Won Yoon, Hongya Lu and Haifeng Wang (State University of New York at Binghamton, USA); Daehan Won (Binghamton University, USA)

Optimization of Passive Chip Components Placement with Self-Alignment Effect for Advanced Surface Mounting Technology
Irandokht Parviziomran, Shun Cao, Seungbae Park and Daehan Won (Binghamton University, USA); Haeyong Yang (Koh Young Technology America, USA)

Prediction of Component Shifts in Pick and Place Process of Surface Mount Technology Using Support Vector Regression
Daehan Won, Shun Cao, Seungbae Park and Irandokht Parviziomran (Binghamton University, USA); Haeyong Yang (Koh Young Technology America, USA)

Collaboration Requirement Planning Protocol for HUB-Cl in Factories of the Future
Puwadol Oak Dusadeerungsikul, Maitreya Sreram and Xiang He (PRISM Center and Purdue University, USA); Ashwin Nair, Karthik Ramani, Alexander J. Quinn and Shimon Nof (Purdue University, USA)
A Method of Supply Chain Evaluation Based on the Structure of an Information Network
Nobuaki Ishii (Kanagawa University, Japan); Masaaki Ohba (Nihon University, Japan)

Study of Rifle Maintenance and Parts Supply via 3D Printing Technology During Wartime
Minsu Kim (Korea Military Academy, Korea &; Seoul National University, Korea) SooChan Kim and Namsu Ahn (Korea Military Academy, Korea)

Fuzzy Bi-Objective Model for a Supply Chain Network Design Problem Considering Stochastic Transportation Lead Time
Azadeh Sadeghi, Roohollah Younes Sinaki and Gursel Suer (Ohio University, USA); Can Celikbilek (DoubleDown Interactice, USA)

The Importance of Supply Chain Resilience: An Empirical Investigation
Fahd Alfarsi (Newcastle University Business School, United Kingdom (Great Britain)); Fred Lemke (Vlerick Business School, Belgium); Ying Yang (University of Newcastle, United Kingdom (Great Britain))

Assessing Benefits of Information Process Integration in Supply Chains
Jukka Hallikas, Kari Korpela, Jyri Vilko and Sirpa Multaharju (Lappeenranta University of Technology, Finland)

Scenario Development for Collaborative Financial Supply Chain Management in Automotive Industry
Veli Matti Virolainen, Miia Pirttila and Timo Karri (Lappeenranta University of Technology, Finland); Lotta Lind (ABB Oy, Finland)

Robust, Evidence-Based Data Fusion
Mohammad Amin Javadi and Brian L Huff (The University of Texas at Arlington, USA)

Potential for Machine Learning in Optimized Production Planning with Hybrid Simulation
Thomas Sobottka, Felix Kamhuber and Wilfried Sihn (Fraunhofer Austria Research GmbH &; TU Vienna, Austria); Mohammadali Faezirad (Ferdowsi University of Mashhad, Iran)

Maturity Models in Industrial Internet: a Review
Massimo Bertolini, Giovanni Esposito, Mattia Neroni and Giovanni Romagnoli (University of Parma, Italy)

A Based-Bee Algorithm Approach for the Multi-Mode Project Scheduling Problem
Karen Yineth Niño and Jorge Peña Carrillo (Universidad Militar Nueva Granada, Colombia)

Integrated Strategies to an Improved Genetic Algorithm for Allocating and Scheduling Multi-Task in Cloud Manufacturing Environment
Abdelrahman Elgendy, Jihong Yan and Mingyang Zhang (Harbin Institute of Technology, P.R. China)
W1030-V4: Manufacturing Sustainability 2
Chair: Alexandre Dolgui
IMT Atlantique & LS2N (France)

The Role of Internal Quality Relations in Driving Sustainability Performance
Ahmed Al Sawafi (University of Newcastle, United Kingdom (Great Britain)); Fred Lemke (Vlerick Business School, Belgium); Ying Yang (University of Newcastle, United Kingdom (Great Britain))

Benchmarking Holistic Optimization Potentials in the Manufacturing Industry - A Concept to Derive Specific Sustainability Recommendations for Companies
Lara Waltersmann, Steffen Kiemel, Ivan Bogdanov and Johanna Lettgen, Robert Miehe, Joerg Mandel and Alexander Sauer (Fraunhofer Institute for Manufacturing Engineering and Automation, Germany)

The Relationships Between Human Capital, Quality Management and Corporate Social Performance: A Bayesian SEM Approach
Hiroki Iwamoto and Hideo Suzuki (Keio University, Japan)

Optimal Operations Management of Hybrid Energy Systems Through Short-Term Atmospheric and Demand Forecasts
Francesca Calabrese, Mauro Gamberi, Riccardo Manzini, Francesco Pilati, Alberto Regattieri and Giovanni Lelli (University of Bologna, Italy)

W1030-G2: Tutorial
Hybrid Manufacturing System Design Considerations and Flexibility in the Advanced Manufacturing Era
Presenter:
Gursel Suer, Ohio University (USA)

12:00 p.m. – 1:30 p.m. Lunch (provided)
Luncheon Speaker:
Yong Yin, Professor, Doshisha University (Japan)
Presentation Title: Seru Production: A Potential Production System for Industry 4.0

1:30 p.m. – 3:00 p.m. Concurrent Technical Sessions

W1330-G1: Data Analytics 3
Chair: Anthony Chiu
De La Salle University (Philippines)

A Study of Statistical Forecasting Method Concerning Water Demand
Yukio Maruyama (Nippon Institute of Technology, Japan); Hisashi Yamamoto (Tokyo Metropolitan University, Japan)

Application of Clustering Analysis for Investigation of Food Accessibility
Rahul Sucharitha and Seokcheon Lee (Purdue University, USA)
Machine Learning Driven Image Analysis of Fine Grinded Knife Blade Surface Topographies
Marcin Hinz, Max Radetzky, Lea Hannah Guenther, Pit Fiur and Stefan Bracke (University of Wuppertal, Germany)

Green Outsourcer Fuzzy Selection Model by Taguchi Capability Index
Kuen-Suan Chen and Ching-Hsin Wang (National Chin-Yi University of Technology, Taiwan); Anthony Chiu (De La Salle University, Philippines)

Predicting Student Retention Using Support Vector Machines
Tatiana A Cardona and Elizabeth Cudney (Missouri University of Science and Technology, USA)

W1330-V1: Internet of Things (Zurich C)
Chair: Koichi Murata
Nihon University (Japan)

On the Role of Visual Management in the Era of Digital Innovation
Koichi Murata (Nihon University, Japan)

Cyber-enabled Product Lifecycle Management A Multi-agent Framework
Vishwa Kumar (Illinois Institute of Technology, USA); Avimanyu Sahoo (Oklahoma State University, USA); Frank Liou (Missouri University of Science and Technology, USA)

System of Systems (SoS) Architecture for Digital Manufacturing Cybersecurity
Lirim Ashiku and Cihan H Dagli (Missouri University of Science and Technology, USA)

Evaluation of Wearable Visual Assistance System for Manual Automotive Assembly
Adithya Baburaj, Ravi Garimella, Gopi Pillai, Vignesh Eswar, Matthew Krugh and Laine Mears (Clemson University, USA)

W1330-V2: Supply Chain 2 (Zurich E)
Chair: Yasutaka Kainuma
Tokyo Metropolitan University (Japan)

Methodological Proposal to Evaluate the Alternative of Outsourcing the Transportation Fleet of a Company
Cecilia Montt and Eduardo Baeza (Pontifical Catholic University of Valparaiso, Chile); Luis Quezada (University of Santiago of Chile, Chile)

Investigation of Global Supply Chain Network Redesign
Yasutaka Kainuma (Tokyo Metropolitan University, Japan); Noriyuki Suyama (Bunka Gakuen University, Japan); Tetsuma Furuhata (Takachiho University, Japan); Yacob Khojasteh (Sophia University, Japan)

A Weighted Multi-Objective Mathematical Model for Cell Scheduling and Environmentally Sustainable Supply Chain Network
Azadeh Sadeghi, Rooollah Younes Sinaki and Gursel Suer (Ohio University, USA); Can Celikbilek (DoubleDown Interactive, USA)

New Service Development Across the Logistics and Financial Industries
Luca Gelsomino, Christiaan de Goeij and Michiel Steeman (Windesheim University of Applied Sciences, The Netherlands)
Development of a Procedure Model for Human-Centered Industry 4.0 Projects
Wilhelm Bauer and Sven Schuler (Fraunhofer Institute for Industrial Engineering IAO, Germany); Tim Hornung (University of Stuttgart, Germany); Jacob Decker (Festo AG & Co. KG, Germany)

Researching the Effects of Automation and Digitalization on Manufacturing Companies' Productivity in the Early Stage of Industry 4.0
Djerdj Horvat, Henning Kroll and Angela Jäger (Fraunhofer Institute for Systems and Innovation Research ISI, Germany)

Critical Success Factors of Risk Management with the Advent of ISO 31000 2018 - Descriptive and Content Analyses
Gabriel Rampini and Fernando Tobal Berssaneti (University of Sao Paulo, Brazil); Harmi Takia (Municipality São Paulo, Brazil)

Analyzing the Implications of New Technologies to the Management of Operations - Protocol Proposal and Application Illustration
Fernando Deschamps (Pontifical Catholic University of Parana & Federal University of Parana, Brazil); Cassiano Beller (Pontifical Catholic University of Parana - Brazil, Brazil); Paulo Henrique Brunheroto (Federal University of Parana, Brazil)

Guidelines for a More Agile, Productive and Integrated New Technologies Employment
Cassiano Beller (Pontifical Catholic University of Parana - Brazil, Brazil); Fernando Deschamps (Pontifical Catholic University of Parana & Universidade Federal do Paraná, Brazil); Edson Pinheiro de Lima (Pontifical Catholic University of Parana & Federal University of Technology - Parana, Brazil); Eduardo Loures (PUC-Pr, Brazil); Rosemary Francisco (PUCPR, Brazil)

Towards Optimum Energy Utilization by Using the Inverters for Industrial Production
Marco Bortolini (University of Bologna, Italy); Maurizio Faccio, Francesco Gabriele Galizia and Mojtaba Nedaei (University of Padova, Italy); Francesco Pilati (University of Bologna, Italy)

Handling Waste in Manufacturing: Encouraging Re-Manufacturing, Recycling and Re-Using in America
Bolaji Ishola (University of Bridgeprt, USA)

A Method of Collaborative Inspection Planning by Integrating a Production Planning System
Hiroshi Shiokawa and Nobuaki Ishii (Kanagawa University, Japan)

The Biological Transformation of Industrial Manufacturing - Future Fields of Action in Bioinspired and Bio-based Production Technologies and Organization
Robert Miehe and Johannes Full (Fraunhofer IPA, Germany); Patrick Scholz and Axel Demmer (Fraunhofer IPT, Germany); Thomas Bauernhansl and Guenther Schuh (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany); Alexander Sauer (Fraunhoder IPA, Germany)
W1330-G2: Tutorial (Zurich B)
Title: Knowledge and Agent-based Framework for Manufacturing Planning in Industry 4.0
Presenter:
Dusan Sormaz, Professor, Ohio University (USA)

3:00 p.m. – 3:30 p.m. Refreshment Break (Preconvene)

3:30 p.m. – 5:00 p.m. Concurrent Technical Sessions

W1530-G1: Intelligent Systems (Zurich A)
Chair: TBD

One-Fits-All vs. Tailor-Made User-Centered Workstations for Field Assembly with an Application in Aircraft Parts Manufacturing
Walter Mayrhofer, Sebastian Schlund and Patrick Ruppercht (Vienna University of Technology, Austria)

Action Recognition in Manufacturing Assembly Using Multimodal Sensor Fusion
Md. Al-Amin, Wenjin Tao, David Doell, Lingard Ravon, Zhaozheng Yin, Ming Leu and Ruwen Qin (Missouri University of Science and Technology, USA)

A Region-Based Deep Learning Algorithm for Detecting and Tracking Objects in Manufacturing Plants
Muhammad Monjurul Karim, David Doell, Lingard Ravon and Zhaozheng Yin, Ming Leu and Ruwen Qin (Missouri University of Science and Technology, USA)

Image Decomposition Accelerates Dynamic Network Modeling for in Situ Monitoring of Bio-mimic Wing Printing Processes
Oluwabusayo Aworunse, Huimin Zhou, Jia Deng and Changqing Cheng (Binghamton University, USA)

W1530-V1: Cloud-Based Manufacturing and Internet of Things (Zurich C)
Chair: Jaime Garcia
Lulea university of Technology (Sweden)

Autonomous Production Workstation Operation, Reconfiguration and Synchronisation
Jaime Garcia and Jerker Delsing (Lulea University of Technology, Sweden)

Collaborative Control Protocol for Agricultural Cyber-Physical System
Puwadol Oak Dusadeerungsikul (PRISM Center and Purdue University, USA); Shimon Nof (Purdue University, USA); Avital Bechar (The Institute of Agriculture Engineering, Israel); Yang Tao (University of Maryland, USA)

Framework for Customized, Machine Learning Driven Condition Monitoring System for Manufacturing
Marcin Hinz, Dominik Brueggemann and Stefan Bracke (University of Wuppertal, Germany)
Associate Finger Engagement During Manual Assembly in Automotive Production for Smart Wearable Systems
Matthew Krugh (Clemson University International Center for Automotive Research, USA); Rishabh Vedant, Ravi Garimella, Adithya Baburaj and Ethan Wescoat (Clemson University, USA); Laine Mears (Clemson University; International Center for Automotive Research, USA)

Prognostic Health Management of Production Systems. New Proposed Approach and Experimental Evidences
Francesca Calabrese, Alberto Regattieri (University of Bologna, Italy); Lucia Botti (University of Modena and Reggio Emilia, Italy); Francesco Gabriele Galizia (University of Padova, Italy)

W1530-V2: Manufacturing
Chair: TBA (Zurich E)

Influences Between Design Characteristics of Lean Manufacturing Systems and Implications for the Design Process
Michael Feldmeth and Egon Müller (Chemnitz University of Technology, Germany)

A Model of Economic Evaluation for the Acquisition of Flexible Manufacturing Technologies
Pedro Palominos, Luis Ernesto Quezada, Javier Donoso Oyarzún (University of Santiago Of Chile, Chile); Miguel Gonzalez (University of Andres Bello, Chile)

Knowledge of IT Tools Based on AI Maturity - Industry 4.0 Perspective
Agnieszka Stachowiak and Natalia Pawlak (Poznan University of Technology, Poland); Przemysław Niewiadomski (University of Zielona Góra, Poland)

Simulation Analysis of Alternative Personnel Structures in the Shipping Division of a Tinplate Manufacturer
Gert Zülch (Karlsruhe Institute of Technology, Germany); Michael Leupold (PROTEMA Unternehmensberatung GmbH, Germany); Mario van Hall and Klaus Höfer (Thyssenkrupp Rasselstein GmbH, Germany)

Implementation of Reconfigurable Manufacturing in the Italian Context State-Of-The-Art and Trends
Marco Bortolini and Emilio Ferrari (University of Bologna, Italy); Francesco Gabriele Galizia (University of Padua, Italy); Cristina Mora (University of Bologna, Italy)

On Advanced Topics for Reinforcing Leanized Management
Hiroshi Katayama (Waseda University, Japan); Koichi Murata (Nihon University, Japan); Deok-joo Lee (Seoul National University, Korea)
Saturation and the Case Study Methodology: How Many Cases Do You Need?
Rob Dekkers (University of Glasgow, United Kingdom (Great Britain)); Christian Hicks (Newcastle University, United Kingdom (Great Britain))

Performance Management Systems for Project Management Offices: A Case-Based Study
Rafael Duarte (Universidade Positivo &; Pontifical Catholic University of Parana, Brazil); Fernando Deschamps (Pontifical Catholic University of Parana&; Federal University of Parana, Brazil); Edson Pinheiro de Lima (Pontifical Catholic University of Parana &; Federal University of Technology - Parana, Brazil); Andre Pepino and René Clavijo (Pontifical Catholic University of Parana, Brazil)

Operations Management in Emergency Medical Services Response Time in a Brazilian Mobile Emergency Care Service
Marcos Colla and Gilson Adamczuk Oliveira, and Gilson D Santos (Federal Technological University of Panama, Brazil)

Effect of Occupational Exposure to Noise on the Health of Factory Workers
An-Ju Lai (Tunghai University, Taiwan& Taiwan HonChuan Enterprise Co., LTD) Chin-Yin Huang (Tunghai University, Taiwan)

Patterns for Analysis of Human Resource Flexibility in Manufacturing
Stefan Gerlach, Moritz Hämmerle and Sven Schuler (Fraunhofer Institute for Industrial Engineering IAO, Germany)