



16th Global Conference on Sustainable Manufacturing

- Sustainable Manufacturing for Global Circular Economy -

Conference Program

October 2-4, 2018

University of Kentucky, Lexington

United States of America

October 2, 2018 (Tuesday)

08:00 – 08:30	Registration at conference site			
08:30 – 09:00	Opening and Welcoming Speeches Moderator: Fazleena Badurdeen Room: Thoroughbred Ballroom Eli Capulito, President – University of Kentucky (tentative) I.S. Jawahir, Chair, GCSM 2018 TBA			
09:00 – 10:00	Keynote Session Moderation: I.S. Jawahir Room: Thoroughbred Ballroom			
09:00 – 09:30	Güenther Seliger <i>Technical University of Berlin, Germany</i>	The Challenge of Sustainable Manufacturing		
09:30 – 10:00	Dean L. Bartles <i>National Tooling and Machining Association, USA</i>	Using “Exponential” Technologies to Drive Manufacturing Towards a Sustainable Future		
10:00 – 10:30	Coffee Break			
10:30 – 11:30	Keynote Session Moderation: Rafi Wertheim Room: Thoroughbred Ballroom			
10:30– 11:00	Joost R. Dufloy <i>Catholic University of Leuven (KU), Belgium</i>	Towards Industrial Symbiosis in Discrete Manufacturing: Opportunities in Alternative Recycling Route Identification for Industrial Waste Streams		
11:00 – 11:30	John Davies <i>GreenBiz, USA</i>	From Here to Circularity: A Model for Restorative and Regenerative Enterprise		
11:30 – 13:00	Sessions and Industry Presentations			
11:30 – 13:00	Session 1: Sustainable Products Room Thoroughbred 5	Session 2: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 3: Sustainable Manufacturing Systems Room Thoroughbred 7	Session 4: Industry Presentations Room Thoroughbred 8
13:00 – 14:00	Lunch (Thoroughbred Ballroom) Luncheon Speaker: O. S. Ganiyusufoglu, Shenyang Machine Tool (Group) Co. Global Sustainable Development Goals - An Obligation For All Of Us!			
14:00 – 14:30	Keynote Session Moderation: Julius Schoop Room: Thoroughbred Ballroom			
14:00 – 14:30	Dermot Brabazon <i>Dublin City University (DCU), Ireland</i>	Additive Manufacturing - A Game Changer for Sustainable Manufacturing?		
14:30 – 16:00	Sessions			
14:30 – 16:00	Session 4: Sustainable Products Room Thoroughbred 5	Session 5: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 6: Cross-Cutting Topics in Sustainable Manufacturing Room Thoroughbred 7	Session 8: Industry Presentations Room Thoroughbred 8
16:00 – 16:30	Coffee Break			
16:30 – 17:30	Panel Discussion			

Sessions and Industry Presentations
October 2, 2018 (Tuesday), 11:30 – 13:00 (90 minutes)

Session 1: Sustainable Products Product (Re)Design for Circular Economy	Session 2: Sustainable Manufacturing Processes Manufacturing Processes, Tools and Equipment	Session 3: Sustainable Manufacturing Systems Energy Efficiency in Manufacturing Systems	Session 4: Industry Presentations Industry Panel Discussion
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Moderator: Tony Elam
<p>Integrated Additive Product Development for Multi-Material Parts (ID: 34) <u>Jerome Kaspar</u>, Stephan Bechtel (<i>Saarland University, Germany</i>), Tobias Häfele (<i>University of Applied Sciences Saarland, Germany</i>), Franziska Herter, Jan-Henrik Schöneberger, Dirk Bähre (<i>Saarland University, Germany</i>), Jürgen Griebisch (<i>University of Applied Sciences Saarland, Germany</i>), Hans-Georg Herrmann, Michael Vielhaber (<i>Saarland University, Germany</i>)</p>	<p>Investigating the Microstructure and Morphology of Chips in Dry, Flood Coolant and MQL Machining of Ti-6Al-4V Alloy (ID: 146) Ashutosh Khatri, <u>Muhammad Jahan</u> (<i>Miami University, USA</i>)</p>	<p>Energy Flexibility – A new Target Dimension in Manufacturing System Design and Operation (ID: 103) Lena Pfeilsticker, Eduardo Colangelo (<i>Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i>), Alexander Sauer (<i>Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany, University of Stuttgart, Germany</i>)</p>	<p>Opportunities and Challenges in Sustainable Manufacturing <i>Jessica Sanderson (Novelis Inc.), Jon Doyle (Lexmark International), Adam Schafer (Intel Corp.), Kevin Bell (Toyota Motor North America)</i></p>
<p>Quantitative Risk Modeling for Evaluating Sustainable Product Designs (ID: 119) Christian Enyoghasi (<i>University of Kentucky, USA, Institute for Sustainable Manufacturing, USA</i>), Adam Brown, Ridvan Aydin (<i>Institute for Sustainable Manufacturing, USA</i>), Fazleena Badurdeen (<i>University of Kentucky, USA, Institute for Sustainable Manufacturing, USA</i>)</p>	<p>Sustainability of Friction Stir Welded AA6082 Plates through Post-weld Solution Heat Treatment (ID: 214) Sarafadeen Azeez, Madindwa Mashinini, <u>Esther T. Akinlabi</u> (<i>University of Johannesburg, South Africa</i>)</p>	<p>Strategic Energy Management in Mechanical Series Production: An Industrial Use-case (ID: 135) <u>Matthias Hacksteiner</u> (<i>Vienna University of Technology, Austria</i>), G. Fuchs (<i>BMW Group Plant Steyr, Austria</i>), F. Bleicher (<i>Vienna University of Technology, Austria</i>)</p>	
<p>Design of a Portable and Sustainable Bicycle Frame (ID: 10) <u>Tawanda Mushiri</u> (<i>University of Johannesburg, South Africa</i>), Reynolds T. Gumbo (<i>University of Zimbabwe</i>), Charles Mbohwa (<i>University of Johannesburg, South Africa</i>)</p>	<p>Road Map to Sustainability of Friction Stir Welded Al-Si-Mg Joints using Bivariate Weibull Analysis (ID: 215) Sarafadeen Azeez, <u>Esther T. Akinlabi</u> (<i>University of Johannesburg, South Africa</i>)</p>	<p>Knowledge-based Approach to Managing Industrial Energy (ID: 165) Mohammed Omar (<i>Khalifa University, UAE</i>), Ahmad Mayyas (<i>National Renewable Energy Laboratory, USA</i>), Safa Al Ameri (<i>Khalifa University, UAE</i>)</p>	

<p>Design for Manufacture and Assembly of an Automated Dish Washing Machine (ID: 12) <u>Tawanda Mushiri</u> (<i>University of Johannesburg, South Africa</i>), Rutendo F. Solomon (<i>University of Zimbabwe, Zimbabwe</i>), Charles Mbohwa (<i>University of Johannesburg, South Africa</i>)</p>	<p>Performance Assessment of CaF₂ Solid Lubricant Assisted Minimum Quantity Lubrication in Turning (ID: 174) <u>Mayurkumar A Makhesana</u>, Kaushik Patel (<i>Nirma University, India</i>)</p>	<p>Simulation-based Analysis of Energy Flexible Factories in a Regional Energy Supply System (ID: 252) <u>Stefan Roth</u> (<i>Fraunhofer Research Institution for Casting, Composite and Processing Technology IGCV, Germany</i>), Markus Thimmel (<i>Fraunhofer Institute for Applied Information Technology FIT, Germany</i>), Jasmin Fischer (<i>Fraunhofer Research Institution for Casting, Composite and Processing Technology IGCV, Germany</i>), Michael Schöpff (<i>Fraunhofer Institute for Applied Information Technology FIT, Germany</i>), Eric Unterberger (<i>Fraunhofer Research Institution for Casting, Composite and Processing Technology IGCV, Germany</i>), Stefan Braunreuther (<i>Fraunhofer Research Institution for Casting, Composite and Processing Technology IGCV, Germany, Augsburg University of Applied Sciences, Germany</i>), Hans Ulrich Buhl (<i>Fraunhofer Institute for Applied Information Technology FIT, Germany</i>), Gunther Reinhart (<i>Fraunhofer Research Institution for Casting, Composite and Processing Technology IGCV, Germany</i>)</p>	
<p>A Total Life Cycle Approach for Developing Predictive Design Methodologies to Optimize Product Performance (ID: 191) <u>Buddhika M. Hapuwatte</u>, I.S. Jawahir (<i>University of Kentucky, USA</i>)</p>	<p>Minimizing Carbon Emission with Improved Human Health in Sustainable Machining of Austenitic Stainless Steel through Multi-objective Optimization (ID: 193) Alper Uysal (<i>University of Kentucky, USA</i>), <u>Yildiz Technical University, Turkey</u>, <u>James R. Caudill</u>, I.S. Jawahir (<i>University of Kentucky, USA</i>)</p>	<p>Dynamic Design and Management of Reconfigurable Manufacturing Systems (ID: 138) Marco Bortolini (<i>University of Bologna, Italy</i>), Francesco <u>Gabriele Galizia</u> (<i>University of Padova, Italy</i>), Cristina Mora (<i>University of Bologna, Italy</i>)</p>	
<p>Lunch 13:00 – 14:00</p>			

Sessions

October 2, 2018 (Tuesday), 14:30 – 16:00 (90 minutes)

Session 5: Sustainable Products Product (Re)Design	Session 6: Sustainable Manufacturing Processes Additive Manufacturing	Session 7: Crosscutting Topics in Sustainable Manufacturing Strategies and Business Models	Session 8: Industry Presentations Industry Case Studies
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Session Chair: Tony Elam
<p>Constructive Methods to Reduce Thermal influences on the Accuracy of Industrial Robots (ID: 25) <u>Christian Mohnke</u>, Sascha Reinkober, Eckart Uhlmann (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Germany</i>)</p>	<p>Improving Sustainability and Cost Efficiency for Spare Part Allocation Strategies by Utilisation of Additive Manufacturing Technologies (ID: 212) Karl Ott (<i>Fraunhofer Austria Research GmbH, Austria, Technical University of Vienna, Austria</i>), Heimo Pascher (<i>Fraunhofer Austria Research GmbH, Austria</i>), Wilfried Sihn (<i>Fraunhofer Austria Research GmbH, Austria, Technical University of Vienna, Austria</i>)</p>	<p>Using the Sharing Economy Approach to Provide Sustainable Mobility (ID: 267) Semih Severengiz (<i>Bochum University of Applied Sciences, Germany</i>)</p>	<p>Featured Case Study: Circular Economy- Real-World Success John Gagel (<i>Lexmark International</i>), Ingrid Sinclair (<i>Sims Recycling Solutions Inc</i>), Jean-Luc Lavergne (<i>Lavergne Group</i>)</p>
<p>Development of an Electric Drive Train for Cycles as a Sustainable Means of Transportation for a Green Environment (ID: 70) Simon Chinguwa, <u>Wilson R. Nyemba</u> (<i>University of Johannesburg, South Africa</i>), Emmanuel Ngondo (<i>University of Zimbabwe, Zimbabwe</i>), Charles Mbohwa (<i>University of Johannesburg, South Africa</i>)</p>	<p>Guidelines to Compare Additive and Subtractive Manufacturing Approaches under the Energy Demand Perspective (ID: 41) <u>Giuseppe Ingarao</u> (<i>University of Palermo, Italy</i>), Paolo Priarone (<i>Politecnico di Torino, Italy</i>), Rosa Di Lorenzo (<i>University of Palermo, Italy</i>), Luca Settineri (<i>Politecnico di Torino, Italy</i>)</p>	<p>Designing and Redesigning Products, Processes, and Systems for a Helical Economy (ID: 159) Ryan Bradley, <u>I.S Jawahir</u> (<i>University of Kentucky, USA</i>)</p>	
<p>Stepping Valve Actuator Algorithm for a Camless IC Engine (ID: 136) <u>Ishmael Zibani</u>, Rapelang Marumo (<i>University of Botswana</i>), Joseph Chuma (<i>Botswana International University of Science and Technology</i>), I. Ngebani, K. Tsamaase (<i>University of Botswana</i>)</p>	<p>Improving the R&D Process Efficiency of the Selective Laser Sintering Industry through Numerical Thermal Modeling (ID: 53) Carlo Martin Olivier, Gert Adriaan Oosthuizen (<i>University of Stellenbosch, South Africa</i>), Natasha Sacks (<i>University of the Witwatersrand, South Africa</i>)</p>	<p>A Conceptual Framework to Create Shared Value in Base of the Pyramid Communities with Micro-Containerised Factories (ID: 27) <u>Zviemurwi J. Chihambakwe</u>, Gert Adriaan Oosthuizen, Stephen Matope, Emad H. Uheida (<i>Stellenbosch University, South Africa</i>)</p>	

<p>Conceptual Model of Life Cycle Assessment based Generic Computer Tool towards Eco-Design in Manufacturing Sector (ID: 163) Rajitha L. Peiris, Asela K. Kulatunga, K.B.S.N. Jinasdasa (<i>University of Peradeniya, Sri Lanka</i>)</p>	<p>Optimisation of Build Orientation to Achieve Minimum Environmental Impact in Stereo-lithography (ID: 97) Mattia Mele, Giampaolo Campana, Fabio Lenzi (<i>University of Bologna, Italy</i>), Barbara Cimatti (<i>University of Bologna, Italy, Research Development Division (ARIC), Italy</i>)</p>	<p>Benchmarking the sustainable manufacturing paradigm via Automatic analysis and clustering of scientific literature: an Italian Technologist perspective (ID: 277) Michele Dassisti (<i>Polytechnic University of Bari, Italy</i>), Filippo Chiarello (<i>University of Pisa, Italy</i>), Gualtiero Fantoni (<i>University of Pisa, Italy</i>), Paolo C. Priarone (<i>Politecnico di Torino, Italy</i>), Giuseppe Ingarao (<i>Università di Palermo, Italy</i>), Giampaolo Campana (<i>University of Bologna, Italy</i>), Andrea Matta, Marcello Colledani, Nicla Frigerio (<i>Polytechnic University of Milan, Italy</i>), Archiemedede Forcellese, Michela Simoncini (<i>Polytechnic University of Marche, Italy</i>)</p>	<p>Sustainable Value Creation through Remanufacturing Adam Trebolow (<i>Springfield Remanufacturing Corp (SRC)</i>)</p>
<p>A Study on the Role of Oil-air Mist Lubrication on a Ultrahigh-speed Bio-generator (ID: 5) Ramesh Kuppuswamy, Colin Richmond, Azeem Khan (<i>University of Cape Town, South Africa</i>)</p>	<p>Sustainability of Metal Powder Additive Manufacturing (ID: 233) Claes Fredriksson (<i>University West, Sweden</i>)</p>		<p>Measuring Sustainable Performance in an Environment Where Every Product is Unique John Cross (<i>American Institute of Steel Construction</i>)</p>
Coffee Break 15:30 – 16:00			

Panel Discussion

October 2, 2018 (Tuesday), 16:30 – 17:30 (60 minutes)

Room Thoroughbred Ballroom

Session Chair: TBA

Manufacturing USA: National Institutes for Manufacturing Innovation

Alan Taub, *Chief Technology Officer, Institute for Lightweight Innovations for Tomorrow (LIFT)*

Uday Vaidya, *Chief Technology Officer, Institute for Advanced Composites Manufacturing Innovation (IACMI)*

Jim Davis, *Senior Advisor, Clean Energy Smart Manufacturing Innovation Institute*

October 3, 2018 (Wednesday)

08:00 – 08:30	Registration at conference site			
08:30 – 10:00	Keynote Session Moderation: Güenther Seliger Room: Thoroughbred Ballroom			
08:30 – 09:00	Mike Molnar <i>Advanced Manufacturing Programs, National Institute for Standards and Technology, USA</i>	Manufacturing USA: Bridging the Gap to a Sustainable Future		
09:00 – 09:30	Holger Kohl <i>Technical University of Berlin, Germany</i>	International Case Studies for Innovative Learning Approaches by Learnstruments and MakerSpaces for Fostering Sustainable Manufacturing		
09:30 – 10:00	Marwan Khraisheh <i>Qatar Research Foundation, Doha, Qatar</i>	Towards Sustainable Energy: Advancing Solar PV in Harsh Desert Climates		
10:00 – 10:15	Coffee Break			
10:15– 13:00	Sessions			
10:15 – 11:30	Session 9: Sustainable Products Room Thoroughbred 5	Session 10: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 11: Sustainable Manufacturing Systems Room Thoroughbred 7	Session 12: Crosscutting Topics in Sustainable Manufacturing Room Thoroughbred 8
11:30 – 11:45	Break / Transition Between Sessions			
11:45 – 13:00	Session 13: Sustainable Products Room Thoroughbred 5	Session 14: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 15: Sustainable Manufacturing Systems Room Thoroughbred 7	Session 16: Sustainable Manufacturing Processes Room Thoroughbred 8
13:00 – 14:00	Lunch (Thoroughbred Ballroom) Luncheon Speaker: James George , Ellen MacArthur Foundation Title: TBD			
14:00 – 14:30	Keynote Session Moderation: Joost R. Dufloy Room: Thoroughbred Ballroom			
14:00 – 14:30	Rossi Setchi <i>Cardiff University, United Kingdom</i>	Integrated Decision-Making for Sustainable Design and Manufacturing		
14:30 – 15:45	Sessions			
14:30 – 15:45	Session 17: Sustainable Manufacturing Processes Room Thoroughbred 5	Session 18: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 19: Sustainable Manufacturing Systems Room Thoroughbred 7	Session 20: Crosscutting Topics in Sustainable Manufacturing Room Thoroughbred 8
15:45 – 16:00	Coffee Break			
16:00 – 17:15	Sessions			
16:00 – 17:15	Session 21: Sustainable Manufacturing Systems Room Thoroughbred 5	Session 22: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 23: Sustainable Manufacturing Processes Room Thoroughbred 7	Session 24: Crosscutting Topics in Sustainable Manufacturing Room Thoroughbred 8
17:30 – 18:30	Bus Transfer to Kentucky Horse Park			
18:30 – 21:30	Conference Banquet			
21:30 – 22:30	Bus Transfer to Downtown			

Sessions

October 3, 2018 (Wednesday), 10:15 – 11:30 (75 minutes)

Session 9: Sustainable Products Product Recovery, Reuse and Remanufacturing	Session 10: Sustainable Manufacturing Processes Manufacturing Processes, Tools and Equipment	Session 11: Sustainable Materials Composites and Plastics	Session 12: Crosscutting Topics in Sustainable Manufacturing Industry 4.0 and Sustainable Manufacturing
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Session Chair: TBA
<p>Solving the Disassembly-to-Order Problem for Components and Materials under Stochastic Yields, Limited Supply, and Quantity Discount using Linear Physical Programming (ID: 231) Yuki Kinoshita, Tetsuo Yamada (<i>The University of Electro-Communications, Japan</i>), Surendra M. Gupta (<i>Northeastern University, USA</i>)</p>	<p>Investigation of the Solubility of Liquid CO₂ and Liquid Oil to Realize an Internal Single Channel Supply in Milling of Ti6Al4V (ID: 20) Thomas Bergs (<i>RWTH Aachen University</i>), Franci Pušavec (<i>University of Ljubljana</i>), <u>Matthias Koch</u> (<i>RWTH Aachen University</i>), Damir Grguraš (<i>University of Ljubljana</i>), Benjamin Döbbeler, Fritz Klocke (<i>RWTH Aachen University</i>)</p>	<p>Highly Rigid Assembled Composite Structures with Continuous Fiber-Reinforced Thermoplastics for Automotive Applications (ID: 250) Lothar Kroll (<i>Chemnitz University of Technology, Germany</i>), Opole University of Technology, Poland), Marcel Meyer (<i>Chemnitz University of Technology, Germany</i>, Cetex Institut für Textil- und Verarbeitungsmaschinen gemeinnützige GmbH, Germany), W. Nendel, M. Schormair (<i>Chemnitz University of Technology, Germany</i>)</p>	<p>Identification and Structuring of Benefits and Expenses for Evaluating the Profitability of Investments in Digitalization within Production (ID: 22) Robert Joppen, Julian Tekaats, Arno Kuehn (<i>Fraunhofer-Institut für Entwurfstechnik Mechatronik IEM, Germany</i>)</p>
<p>Demand-oriented Barriers and Potentials for Remanufacturing in Vietnam (ID: 124) Thomas Guidat, <u>Aleksandra Wewer</u>, Holger Kohl, Günther Seliger (<i>Technische Universität Berlin, Germany</i>)</p>	<p>Sustainable Machining of Milling Nickel Base Alloys – A Comparative Study (ID: 74) Nurul Hayati Abdul Halim (<i>Universiti Kebangsaan Malaysia, Malaysia</i>, <i>Universiti Teknologi MARA, Malaysia</i>), Che Hassan Che Haron, Jaharah Abdul Ghani, Muammar Faiq Azhar (<i>Universiti Kebangsaan Malaysia, Malaysia</i>)</p>	<p>Increasing the Sustainability of Composite Manufacturing Processes by using Algorithm-based Optimization and Evaluation for Process Chain Design (ID: 28) Florian Brillowski, <u>Christoph Greb</u>, Thomas Gries (<i>RWTH Aachen University, Germany</i>)</p>	<p>Digitalization Technologies for Industrial Sustainability (ID: 111) <u>Melissa Demartini</u> (<i>University of Genoa, Italy</i>), Steve Evans (<i>University of Cambridge, UK</i>), Flavio Tonelli (<i>University of Genoa, Italy</i>)</p>
<p>Decentralized Identification of Used Exchange Parts with a Mobile Application (ID: 133) Jan Lehr, Marian Schlüter (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Germany</i>), Jörg Krüger (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Germany</i>, <i>Technische Universität Berlin, Germany</i>)</p>	<p>Tool Life of Coated Cemented Carbide when Machining Inconel 718 under Sustainable Conditions (ID: 76) Muammar Faiq Azhar, Che Hassan Che Haron, Jaharah A. Ghani (<i>Universiti Kebangsaan Malaysia, Malaysia</i>), Nurul Hayati Abdul Halim (<i>Universiti Kebangsaan Malaysia, Malaysia</i>, <i>Universiti Teknologi MARA, Malaysia</i>)</p>	<p>Feasibility Study for Manufacturing CF/Epoxy – Thermoplastic Hybrid Structures in a Single Operation (ID: 82) <u>Hakan Kazan</u>, Saeed Farahani, Srikanth Pilla (<i>Clemson University, USA</i>)</p>	<p>Turnkey Platform for Sustainable, Energy Efficient Production Systems (ID: 85) Christopher Ehrmann (<i>Karlsruhe Institute of Technology (KIT), Germany</i>, <i>Tongji University, China</i>), Zhao-hui Liu (<i>Tongji University, China</i>, <i>Jinggangshan University, China</i>), Weimin Zhang (<i>Tongji University, China</i>), Jürgen Fleischer (<i>Karlsruhe Institute of Technology (KIT), Germany</i>)</p>

<p>Application of Fuzzy Logic in Selection of Remanufacturing Technology (ID: 144) John Mbogo Kafuku (<i>University of Dar es Salaam, Tanzania</i>), Muhamad Zameri Mat Saman, Shar'i Mohd Yusof (<i>Universiti Teknologi Malaysia (UTM)</i>), Mohd Fahrul Hassan (<i>Universiti Tun Hussein Onn Malaysia</i>)</p>	<p>Multi-criteria Decision-making for the Life Cycle of Sustainable High Pressure Die Casting Products (ID: 126) <u>Emanuele Pagone</u>, Konstantinos Salonitis, Mark Jolly (<i>Cranfield University, UK</i>)</p>	<p>Energy- and Ecologically-oriented Selection of Plastic Materials (ID: 48) Heiko Dunkelberg, Tim Weiß, F. Mazurek (<i>University of Kassel, Germany</i>)</p>	<p>Development of an Intelligent Tool Condition Monitoring System to Identify Manufacturing Tradeoffs and Optimal Machining Conditions (ID: 232) <u>Wo Jae Lee</u>, Gamini P. Mendis, John W. Sutherland (<i>Purdue University, USA</i>)</p>
--	---	--	--

Sessions

October 3, 2018 (Wednesday), 11:45 – 13:00 (75 minutes)

Session 13: Sustainable Products Product Recovery, Reuse, Remanufacturing, and Recycling	Session 14: Sustainable Manufacturing Processes Manufacturing Processes, Tools and Equipment	Session 15: Sustainable Manufacturing Systems Manufacturing System Design	Session 16: Sustainable Manufacturing Processes Energy and Resource Efficiency
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Session Chair: TBA
<p>Economics and Challenges of Li-Ion Battery Recycling from End-of-Life Vehicles (ID: 243) Darlene Steward, Ahmad Mayyas, Margaret Mann (National Renewable Energy Laboratory, USA)</p>	<p>Design for Eco-efficiency – A System of Indicators and their Application to the Case of Moulds for Injection Moulding (ID: 122) Uwe Götze (Technische Universität Chemnitz, Germany), Paulo Peças (Universidade de Lisboa, Portugal), Fanny Richter (Technische Universität Chemnitz, Germany)</p>	<p>Zero-waste Production: Technology for the In-house Recycling of Technical Elastomers (ID: 129) Lothar Kroll (Chemnitz University of Technology, Germany, Opole University of Technology, Poland), Stefan Hoyer (Chemnitz University of Technology, Germany)</p>	<p>Techno-economic Analysis of Battery Storage Systems for Demand Responds Application in Manufacturing (ID: 224) Carmen Höne, Max Weeber (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany), Fritz Braeuer (Karlsruhe Institute of Technology KIT, Germany), Alexander Sauer (Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany, University of Stuttgart, Germany)</p>
<p>Remanufacturing of Electric Vehicles: Challenges in Production Planning and Control (ID: 188) Achim Kampker, Johannes Triebs, Ansgar Hollah, Christoph Lienemann (RWTH Aachen University, Germany)</p>	<p>Assessment of Inflatable Core Assisted Paper Bottle Moulding Process (ID: 100) Prateek Saxena, Giuliano Bissacco (Technical University of Denmark, Denmark)</p>	<p>A Practical Approach to Reduce Energy Consumption in a Serial Production Environment by Shutting Down Subsystems of a Machine Tool (ID: 45) Alperen Can, Gregor Thiele, Jörg Krüger, Jessica Fisch, Carsten Klemm (Fraunhofer Institute for Production Systems and Design Technology IPK, Germany)</p>	<p>Energetic Evaluation of Press Hardening Processes (ID: 237) Enrique Meza-García, Anja Rautenstrauch, Verena Kräusel, Dirk Landgrebe (Technische Universität Chemnitz, Germany)</p>
<p>A Novel Approach for Developing a Flexible Automation System for Rewinding an Induction Motor Stator using Robotic Arm (ID: 172) Alice Matenga, Eriyeti Murena, Givemore Kanyemba, Samson Mhlanga (National University of Science and Technology, Zimbabwe)</p>	<p>The Evolution of Molds in Manufacturing: From Rigid to Flexible (ID: 112) Francesco Gabriele Galizia (University of Padova, Italy), Waguih ElMaraghy, Hoda ElMaraghy (University of Windsor, Canada), Marco Bortolini, Cristina Mora (University of Bologna, Italy)</p>	<p>Factors for Effective Implementation of Lean Manufacturing Practice in Selected Industries in Tanzania (ID: 140) John Mbogo Kafuku (University of Dar es Salaam, Tanzania)</p>	<p>Modelling, Simulation and Optimization of the Comminution and Flotation Circuits of Platinum for Sustainable Mineral Processing (ID: 68) Wilson R. Nyemba (University of Johannesburg, South Africa), Zvikomborero B. Kapumha (University of Zimbabwe, Zimbabwe), Tawanda Mushiri, Charles Mbohwa (University of Johannesburg, South Africa)</p>

<p>Evaluation of Environmental Impact and Benefits for Remanufactured Construction Equipment Parts Using Life Cycle Assessment (ID: 99) <u>Yong-Sung Jun</u>, Hong-Yoon Kang, Hyun-Jung Jo, Chun-Youl Baek, Young-Chun Kim (<i>Center for Resources Information & Management (KITECH), Korea</i>)</p>	<p>Effects of Cooling Lubricant on the Thermal Regime in the Working Space of Machine Tools (ID: 116) Michael Bräunig, Joachim Regel (<i>Technische Universität Chemnitz, Germany</i>), Janine Glänzel (<i>Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany</i>), Matthias Putz (<i>Technische Universität Chemnitz, Germany, Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany</i>)</p>	<p>A Holistic Perspective for the Manufacturing Sustainability (ID: 66) Ibrahim Garbie (<i>Helwan University, Egypt</i>)</p>	<p>Design Rules for Additive Manufacturing – Understanding the Fundamental Thermal Phenomena to Reduce Scrap (ID: 175) M. Reza Yavari, Kevin D. Cole, Prahalada K. Rao (<i>Univeristy of Nebraska-Lincoln, USA</i>)</p>
<p>Lunch 13:00 – 14:00</p>			

Sessions

October 3, 2018 (Wednesday), 14:30 – 15:45 (75 minutes)

Session 17: Sustainable Manufacturing Processes Resource Utilization and Waste Reduction	Session 18: Sustainable Manufacturing Processes Energy and Resource Efficiency	Session 19: Sustainable Manufacturing Systems Production Planning, Scheduling and Control	Session 20: Crosscutting Topics in Sustainable Manufacturing Education and Workforce Development
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Session Chair: TBA
<p>Feasibility Study of the Materials Handling and Development of a Sustainable Conveying System in Plastics Recycling and Manufacture (ID: 69) Simon Chinguwa, <u>Wilson R. Nyemba</u> (<i>University of Johannesburg, South Africa</i>), Kudzai Boora (<i>University of Zimbabwe, Zimbabwe</i>), Charles Mbohwa (<i>University of Johannesburg, South Africa</i>)</p>	<p>A Practical Framework for the Optimization of Production Management Processes (ID: 75) Robert Joppen, Sebastian von Enzberg, Arno Kühn (<i>Fraunhofer-Institut für Entwurfstechnik Mechatronik IEM</i>), Roman Dumitrescu (<i>University of Paderborn</i>)</p>	<p>Mathematical Model for Proactive Resequencing of Mixed Model Assembly Lines (ID: 187) Achim Kampker, Kai Kreiskoether, <u>Marius Schumacher</u> (<i>RWTH Aachen University, Germany</i>)</p>	<p>Augmented Learning Environment for Industrial and Higher Education (ID: 3) Jan Menn, <u>Mustafa Severengiz</u>, Andrea Lorenz, Günther Seliger (<i>Technische Universität Berlin, Germany</i>)</p>
<p>Value Addition to Plastic Solid Wastes: Informal Waste Collectors' Perspective (ID: 51) Bupe Mwanza (<i>Cavendish University, Zambia, University of Johannesburg, South Africa</i>), Charles Mbohwa, Arnesh Telukdarie, Chuks Medoh (<i>University of Johannesburg, South Africa</i>)</p>	<p>Framework for Energy Efficiency Optimization of Industrial Systems based on the Control Layer Model (ID: 58) <u>Gregor Thiele</u>, Oliver Heimann (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Germany</i>), Knut Grabowski (<i>ÖKOTEC Energiemanagement GmbH, Germany</i>), Jörg Krüger (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Technische Universität Berlin, Germany</i>)</p>	<p>User-Centric Process Management System for Digital Transformation of Production (ID: 117) Nicole Oertwig, <u>Patrick Gering</u>, Thomas Knothe (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Germany</i>), Sven O. Rimmelpacher (<i>Pickert&Partner GmbH, Germany</i>)</p>	<p>Sustainable Engineering Master Module – Insights from three Cohorts of European Engineering Team (ID: 275) Bartłomiej Gladysz (<i>Warsaw University of Technology, Poland</i>), Marcello Urgo (<i>Politecnico di Milano, Italy</i>), Tim Stock (<i>Technische Universität Berlin, Germany</i>), Cecilia Haskins (<i>Norwegian University of Science and Technology (NTNU), Norway</i>), Felix Sieckmann (<i>Technische Universität Berlin, Germany</i>), Elzbieta Jarzebowska (<i>Warsaw University of Technology, Poland</i>), Holger Kohl (<i>Technische Universität Berlin, Germany</i>), Jan Ola Strandhagen (<i>Norwegian University of Science and Technology (NTNU), Norway</i>), Tullio Tollio (<i>Politecnico di Milano, Italy</i>)</p>
<p>A Data Architecture to Aid Life Cycle Assessment in Closed-loop Reusable Plastic Container Networks (ID: 101) <u>Giulia Baruffaldi</u> (<i>University of Padua, Italy</i>), Riccardo Accorsi, Luca Volpe, Riccardo Manzini (<i>University of Bologna, Italy</i>)</p>	<p>Improving the Energy Efficiency of Industrial Drying Processes: A Computational Fluid Dynamics Approach (ID: 90) Christoph T. Hoffmann (<i>Bayreuth University, Germany</i>), Julian Praß (<i>Friedrich-Alexander-University Erlangen-Nürnberg, Germany</i>), Thomas Hans-Joachim Uhlemann (<i>Bayreuth University, Germany</i>), Jörg Franke (<i>Friedrich-Alexander-University Erlangen-Nürnberg, Germany</i>)</p>	<p>Inventory Management and Performance of SMEs in the Manufacturing Sector of Harare (ID: 258) <u>Wiseman Muchaendepi</u>, Charles Mbohwa (<i>University of Johannesburg, South Africa</i>), Chimbiluni Hamandishe, James Kanyepe (<i>Chinhoyi University of Technology, Zimbabwe</i>)</p>	<p>Circular Economy in Integrated Product and Production Development Education (ID: 139) Minna Lanz, Hasse Nylund, Timo Lehtonen, Tero Juuti (<i>Tampere University of Technology, Finland</i>), Kaisu Rättyä (<i>University of Tampere, Finland</i>)</p>

	<p>Methodology for the Early Analysis and Evaluation of the Resource Efficiency of Process Chains for Manufacturing Hybrid Structures (ID: 107) C. Symmank, J. Boll, A. Rautenstrauch, A. Graf, L. Markov, R. Decker, A. Schmidt, <u>U. Götze</u>, B. Awiszus, V. Kräusel (<i>Chemnitz University of Technology, Germany</i>), D. Landgrebe, L. Kroll (<i>Chemnitz University of Technology, Germany, Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany</i>)</p>	<p>Web-based Process Planning System Concept Selection using Weighted Decision Matrix and Analytical Hierarchy Process: A Case Study of Sheet Metal Bending Operations (ID: 105) <u>Eriyeti Murena</u>, Khumbulani Mpofu, Olasumbo Makinde, John Alfred Trimble (<i>Tshwane University of Technology, South Africa</i>), Tshwane Xi Wang (<i>KTH Royal Institute of Technology, Sweden</i>)</p>	<p>An Online Education Model for Next Generation Sustainable Manufacturing Workforce Development (ID: 278) Fazleena Badurdeen, Keith Rouch, I.S. Jawahir (<i>University of Kentucky, USA</i>)</p>
Coffee Break 15:45 – 16:00			

Sessions

October 3, 2018 (Wednesday), 16:00 – 17:15 (75 minutes)

Session 21: Sustainable Manufacturing Systems Sustainable Supply Chains	Session 22: Sustainable Manufacturing Processes Manufacturing Processes, Tools and Equipment	Session 23: Sustainable Manufacturing Processes Process Modeling and Improvement	Session 24: Crosscutting Topics in Sustainable Manufacturing Challenges and Strategies in Emerging Countries
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA		Session Chair: TBA
<p>Analysis on Sustainable Supply Chain for Circular Economy (ID: 131) Manavalan Ethirajan, <u>Jayakrishna Kandasamy</u> (<i>Vellore Institute of Technology (VIT), India</i>)</p>	<p>Experimental Methods to Study Environmental Sustainability of Silicon-based Lithium Ion Battery Manufacturing (ID: 254) <u>Fenfeng Wang</u> (<i>Case Western Reserve University, USA</i>), Lulu Ma (<i>University of Wisconsin-Milwaukee, USA</i>), Chris Yuan (<i>Case Western Reserve University, USA</i>)</p>	<p>Influence of Constitutive Models on Finite Element Simulation of Chip Formation in Orthogonal Cutting of Ti-6Al-4V Alloy (ID: 192) <u>Guang Chen</u>, Lianpeng Lu, Zhihong Ke, Xuda Qin, Chengzu Ren (<i>Tianjin University, China</i>)</p>	<p>Environmental and Social Sustainability of Sri Lankan Tea Industry in the Wake of Global Market Challenges (ID: 161) Nicolas Kassel, Asela Kulatunga (<i>University of Peradeniya, Sri Lanka</i>), N.C. Kassel (<i>University of Bremen, Germany</i>)</p>
<p>The Use of Data Envelopment Analysis in Evaluating Pareto Optimal Solutions of the Sustainable Supply Chain Models (ID: 87) <u>Alperen Bal</u> (<i>Yalova University, Turkey</i>), Şule İtir Satoğlu (<i>Istanbul Technical University, Turkey</i>)</p>	<p>Emerging Manufacturing Technologies for Fuel Cells and Electrolyzers (ID: 244) <u>Ahmad Mayyas</u>, Margaret Mann (<i>National Renewable Energy Laboratory, USA</i>)</p>	<p>Fuzzy Multi Criteria Approach for Sustainable Maintenance Evaluation in Rubber Industry (ID: 123) Elita Amrina, Ardy Yulianto, Insannul Kamil (<i>Andalas University, Indonesia</i>)</p>	<p>Industrial Sustainability in a Challenged Economy: The Zimbabwe Steel Industry (ID: 35) Loice Gudukeya, Charles Mbohwa (<i>University of Johannesburg, South Africa</i>), Paul T. Mativenga (<i>The University of Manchester, UK</i>)</p>
<p>Challenges Faced by the Mining Sector in Implementing Sustainable Supply Chain Management in Zimbabwe (ID: 268) <u>Wiseman W. Muchaendepi</u>, Charles Mbohwa (<i>University of Johannesburg, South Africa</i>), James Kanyepe (<i>Chinhoyi University of Technology, Zimbabwe</i>), Michael Mutingi (<i>University of Johannesburg, South Africa</i>)</p>	<p>Evaluating the Usability of Bio Coal from Sugar Cane Bagasse as a Solid Fuel (ID: 64) Musaida M. Manyuchi (<i>University of Johannesburg, South Africa</i>), Manicaland State University of Applied Sciences, Zimbabwe), Charles Mbohwa (<i>University of Johannesburg, South Africa</i>), Edison Muzenda (<i>University of Johannesburg, South Africa</i>), Botswana International University of Science and Technology, Botswana)</p>	<p>Signal-based non-Intrusive Load Decomposition (ID: 44) <u>Tim Weiß</u>, Heiko Dunkelberg, Jan-Peter Seevers (<i>University of Kassel, Germany</i>)</p>	<p>Road to Sustainable Manufacturing: Why Households are not Participating in Recycling Programs in Ndola, Zambia? (ID: 50) Bupe Mwanza (Cavendish University, Zambia), <i>University of Johannesburg, South Africa</i>), Charles Mbohwa, Arnesh Telukdarie, Chuks Medoh (<i>University of Johannesburg, South Africa</i>)</p>
<p>Inventory Sharing in Supply Chains with Scarce Resource: Decisions, Benefit and Optimization (ID: 24) Ziteng Wang (<i>Northern Illinois University, USA</i>)</p> <p>[Presentation only]</p>	<p>Perfect Repair Constraints in Manufacturing Firms – A Case Study (ID: 78) Peter Muganyi (<i>University of Johannesburg, South Africa</i>)</p>	<p>Material and Process Selection Sustainability Aspects (ID: 166) Mohammed Omar (<i>Khalifa University of Science and Technology, UAE</i>), Ala Qattawi (<i>University of California, USA</i>), Numan Saeed (<i>Khalifa University of Science and Technology, UAE</i>)</p> <p>[Presentation only]</p>	<p>Innovation Catalysts for Industrial Waste Challenges: Sri Lankan and Thai Cases (ID: 106) Curie Park (<i>University of Cambridge, UK</i>), Kallaya Tantiyaswasdikul (<i>Thammasat University, Thailand</i>), Steve Evans (<i>University of Cambridge, UK</i>), Pusit Lertwattanaruk (<i>Thammasat University, Thailand</i>)</p>
Bus Transfer to Kentucky Horse Park 17:30 – 18:30			
Conference Banquet 18:30 – 21:30			
Bus Transfer to Lexington Downtown 21:30 – 22:30			

October 4, 2018 (Thursday)

08:00 – 08:30	Registration at conference site			
08:30 – 10:00	Keynote Session Moderation: Holger Kohl Room: Thoroughbred Ballroom			
08:30 – 09:00	Rafi Wertheim <i>Fraunhofer IWU, Germany</i>	Converging of Biologicalisation, Digitalization, Sustainability and Future Manufacturing (ID: 270)		
09:00 – 09:30	Wilfried Sihm <i>Vienna University of Technology, Austria</i>	Digitized, Optimized, Ecologized? Can Digitization Promote Sustainable Manufacturing?		
09:30 – 10:00	Mohamed El-Mansori <i>Arts et Métiers Paris Tech, France</i>	Smart Manufacturing of Natural Fiber Composites		
10:00 – 10:30	Coffee Break			
10:30 – 12:00	Sessions			
10:30 – 12:00	Session 25: Crosscutting Topics in Sustainable Manufacturing Room Thoroughbred 5	Session 26: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 27: Sustainable Manufacturing Processes Room Thoroughbred 7	Session 28: Sustainable Manufacturing Processes Room Thoroughbred 8
12:00 – 13:00	Lunch			
13:00 – 14:15	Session 29: Sustainable Products Room Thoroughbred 5	Session 30: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 31: Sustainable Manufacturing Processes Room Thoroughbred 7	Session 32: Crosscutting Topics in Sustainable Manufacturing Room Thoroughbred 8
14:15 – 14:30	Break/Transition Between Sessions			
14:30 – 15:45	Session 33: Sustainable Manufacturing Processes Room Thoroughbred 5	Session 34: Sustainable Manufacturing Processes Room Thoroughbred 6	Session 35: Student Competition Presentations Room Thoroughbred 7	Session 36: Crosscutting Topics in Sustainable Manufacturing Room Thoroughbred 8
15:45	Farewell and end of the 15th Global Conference on Sustainable Manufacturing Room: Thoroughbred Ballroom			

Sessions

October 4, 2018 (Thursday), 10:30 – 12:00 (90 minutes)

Session 25: Crosscutting Topics in Sustainable Manufacturing Strategies and Performance Assessment	Session 26: Sustainable Manufacturing Processes Cutting Technologies	Session 27: Sustainable Manufacturing Processes Energy and Resource Efficiency	Session 28: Sustainable Manufacturing Systems EoL Strategies and Performance Assessment
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Session Chair: TBA
<p>Metrics for Identifying the Most Suitable Strategy for Distributed Localised Food Manufacturing (ID: 160) <u>Pedro Gimenez-Escalante</u>, Shahin Rahimifard (<i>Loughborough University, UK</i>)</p>	<p>Ecological and Functional Optimization of the Pretreatment Process for Plasma-based Coatings of Cutting Tools (ID: 54) Eckart Uhlmann, Hendrik Riemer (Technische Universität Berlin, Germany), Sehoon An, Maik Fröhlich (<i>Leibniz Institute for Plasma Science and Technology (INP), Germany</i>), Hanno Paschke (<i>Fraunhofer Institute for Surface Engineering and Thin Films (IST), Germany</i>), Mirjana Petersen (<i>Albrecht + Schumacher Oberflächentechnik GmbH, Germany</i>)</p>	<p>Design of a Photovoltaic System with Ultracapacitor Energy Buffer (ID: 195) Bakary Diarra, Adamu Murtala Zungeru, Samikannu Ravi, Joseph Chuma, Bokamoso Basutli (<i>Botswana International University of Science and Technology, Botswana</i>)</p>	<p>Economic and Environmental Evaluation of Aluminium Recycling based on a Belgian Case Study (ID: 190) <u>Vi Kie Soo</u> (<i>The Australian National University, Australia</i>), Jef Peeters (<i>Katholieke Universiteit Leuven, Belgium</i>), Paul Compston (<i>The Australian National University, Australia</i>), Matthew Doolan (<i>The Australian National University, Australia</i>), Joost Duflou (<i>Katholieke Universiteit Leuven, Belgium</i>)</p>
<p>Strategic Local Manufacturing Supplier Development Roadmap as a Decision Support Tool (ID: 169) M. Vermeulen, Gert Adriaan Oosthuizen (<i>Stellenbosch University, South Africa</i>)</p>	<p>Constant Surface Roughness over Tool-Lifetime due to Online Process Monitoring and Cutting Parameter Adaption in Turning of Gear Steels (ID: 26) Eckart Uhlmann, <u>Tobias Holznagel</u>, L. Prasol (<i>Technische Universität Berlin, Germany</i>)</p>	<p>On How the Selection of Materials Affects Sustainability (ID: 197) <u>Ana Esther Bonilla Hernández</u> (<i>GKN Aerospace Engine Systems AB, Sweden, University West, Sweden</i>)</p>	<p>A Systems-based Sustainability Assessment Framework to Capture Active Impacts in Product Life Cycle/ Manufacturing (ID: 213) Manish Kumar, <u>Monto Mani</u> (<i>Indian Institute of Science, India</i>)</p>
<p>Data-driven Sustainability in Manufacturing: Selected Examples (ID: 271) Barbara S. Linke, Destiny R. Garcia, Akshay Kamath, Ian C. Garretson (<i>University of California Davis, USA</i>)</p>	<p>Performance Evaluation of Micro-Textured Cutting Tools in Orthogonal Turning of Inconel 718: A 3D FE Simulation and Efficiency Investigations of Textured Cutting Tools in Orthogonal Cutting of Ti6Al4V: A Numerical Approach (ID: 108 and 168) <u>Eren Kaya</u>, <u>İrfan Kaya</u>, <u>Adnan Kaya</u></p>	<p>Process Sustainability Evaluation for Manufacturing of a Component with the 6R Application (ID: 226) <u>Ana Esther Bonilla Hernández</u> (<i>GKN Aerospace Engine Systems AB, Sweden, University West, Sweden</i>), Tao Lu (<i>University of Kentucky, USA</i>), Tomas Beno, Claes Fredriksson (<i>University West, Sweden</i>), I.S. Jawahir (<i>University of Kentucky, USA</i>)</p>	<p>Hybrid Exergetic Analysis-LCA Approach and the Industry 4.0 Paradigm: Assessing Manufacturing Sustainability in an Italian SME (ID: 262) Michele Dassisti (<i>Politecnico di Bari, Italy</i>), Concetta Semeraro (<i>MASTER s.r.l., Italy</i>), Michela Chimenti (<i>INRES LAB s.c.a.r.l., Italy</i>)</p>
<p>Sustainability Reporting in German Manufacturing SMEs (ID: 273) <u>Erik Steinhöfel</u>, Mila M. Galeitzke (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Germany</i>), Holger Kohl (<i>Technische Universität Berlin, Germany</i>)</p>	<p>Comparison of Abrasive Water Jet Technologies in Terms of Performance and Kerf Geometry Accuracy for Cutting Ceramics (ID: 42) Florian Morczinek (<i>Chemnitz University of Technology, Germany</i>), Matthias Putz (<i>Fraunhofer Institute for Machine Tools and Forming Technology, Germany</i>), Martin Dix (<i>Chemnitz University of Technology, Germany</i>)</p>	<p>A Survey of Artificial Neural Network-based Prediction Models for Thermal Properties of Biomass (ID: 210) Obafemi O. Olatunji, Stephen A. Akinlabi (<i>University of Johannesburg, South Africa</i>), Oluseyi Ajayi (<i>Covenant University, Nigeria</i>), Madushele Nkosinathi (<i>University of Johannesburg, South Africa</i>)</p>	<p>Evolution of Supply Chain Management: A Sustainability Focused Review (ID: 156) Wen Shen (<i>Wuhan University of Technology, China</i>), <u>Dan Hu</u> (<i>Iowa State University, USA</i>), Elif Elçin Günay (<i>Iowa State University, USA</i>), Sakarya University, Turkey), Gül E. Okudan Kremer (<i>Iowa State University, USA</i>)</p>

		<p>Energy Demand Reduction of Aluminum Alloys Recycling through Friction Stir Extrusion Processes Implementation (ID: 57) <u>Giuseppe Ingarao</u>, Dario Baffari (<i>University of Palermo, Italy</i>), Ellen Bracquene (<i>Katholieke Universiteit Leuven, Belgium</i>), Livan Fratini (<i>University of Palermo, Italy</i>), Joost Duflou (<i>Katholieke Universiteit Leuven, Belgium</i>)</p>	<p>Exploring the Relationships Between Product Innovation Radicality and Extensity of Flexibility in Sustainable Manufacturing System: How Flexibility affects the Performance of Most Innovative Factories in the USA (ID: 32) Selma Oliveira (<i>Fluminense University, Brazil</i>)</p>
--	--	--	---

Sessions

October 4, 2018 (Thursday), 13:00 – 14:15 (75 minutes)

Session 29: Sustainable Products Product (Re)Design for Circular Economy	Session 30: Sustainable Manufacturing Processes Cutting Technologies	Session 31: Sustainable Manufacturing Processes Manufacturing Processes, Tools and Equipment	Session 32: Crosscutting Topics in Sustainable Manufacturing Education and Workforce Development
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Session Chair: TBA
<p>Creating Integrated Product and Service Architectures for Circular Modular Product Design (ID: 132) Friedrich Halstenberg, Rainer Stark (<i>Fraunhofer Institute for Production Systems and Design Technology IPK, Germany</i>)</p>	<p>Comparison between Elastomeric Passive Isolators and LQR Control in Stone Cutting Process: Modelling and Simulation (ID: 18) Ahmed Abu Hanieh, Ahmad Albalasie (<i>Birzeit University, Palestine</i>)</p>	<p>Aggregating Unit Process Models to Enable Environmental Impact Characterization of Polymer-based Hybrid Manufacturing (ID: 60) Sriram Manoharan, Dustin Scott Harper, Karl R. Haapala (<i>Oregon State University, USA</i>)</p>	<p>Analysis of Industrial Engineering Qualifications for the Job Market (ID: 274) Pinar Bilge, Mustafa Severengiz, Günther Seliger (<i>Technische Universität Berlin, Germany</i>)</p>
<p>A Simulation Model of Consumer Take-Back Decisions Regarding Product Design (ID: 151) Josiah J. Green (<i>Iowa State University, USA</i>), Elif Elçin Günay (<i>Iowa State University, USA, Sakarya University, Turkey</i>), Gül E. Okudan Kremer (<i>Iowa State University, USA</i>)</p>	<p>An Investigation of Buzz Saw Blade Cutting Forces Depending on Tool Geometry for Cutting Frozen Wood (ID: 52) Christoph Schmidt (<i>Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany</i>), Hans-Henrik Westermann (<i>Bayreuth University, Germany</i>), Rolf Steinhilper (<i>Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany, Bayreuth University, Germany</i>)</p>	<p>About the Use of Mineral and Vegetable Oils to Improve the Sustainability of Steel Quenching (ID: 96) Fabio Lenzi, Giampaolo Campana, Antonio Lopatriello, Mattia Mele (<i>University of Bologna, Italy</i>), Andrea Zanotti (<i>Proterm S.p.A, Italy</i>)</p>	<p>A Systems Thinking Approach to Collaborations for Capacity Building and Sustainability in Engineering Education (ID: 67) Wilson R. Nyemba (<i>University of Johannesburg, South Africa</i>), Keith F. Carter (<i>University of Leicester, UK</i>), Charles Mbohwa, Simon Chinguwa (<i>University of Johannesburg, South Africa</i>)</p>
<p>Effectiveness of Product Recovery Systems (ID: 227) Matthew Doolan, Brendan Moloney, Vi Kie Soo (<i>The Australian National University, Australia</i>)</p>	<p>Effects of Surface Texture Parameters of Cutting Tools on Friction Conditions at Tool-Chip Interface during Dry Machining of AISI 1045 Steel (ID: 211) Sagar Dhage, Anshu Dhar Jayal, Prabir Sarkar (<i>Indian Institute of Technology Ropar, India</i>)</p>	<p>A Thermal FEA Modeling of Multiple Machining Processes for Practical Machining Process Optimization (ID: 143) Tao Lu (<i>SME Tech Center, USA</i>)</p>	<p>Promoting STEM Education through Sustainable Manufacturing: Case Study of Photovoltaic Toys (ID: 222) Juliana Machuve, Edward Mkenda (<i>University of Dar es Salaam, Tanzania</i>)</p>
<p>Sustainable Product Strategy using SWOT and AHP Methods (ID: 83) Mohd Fahrul Hassan, Ng Wee Chen, Md Fauzi Ahmad (<i>Universiti Tun Hussein Onn Malaysia, Malaysia</i>), Muhamad Zameri Mat Saman (<i>Universiti Teknologi Malaysia, Malaysia</i>), Norhayati Zakuan, Falah Abu (<i>Universiti Teknologi MARA, Malaysia</i>)</p>	<p>Enhancing Accuracy and Productivity of Super Precision Turning Machining Centers (ID: 249) E. Kushnir (<i>Hardinge, USA</i>), R. Karadayi (<i>Applied Automation Technologies, USA</i>), W. Clark (<i>Hardinge, USA</i>), A. C. Affer, A. Naga (<i>Applied Automation Technologies, USA</i>)</p>	<p>Microstructural Effect of Laser Cladded Ti + TiB₂ on Steel Rail (ID: 164) Victor I. Aladesanmi, Samuel Fatoba, Esther T. Akinlabi (<i>University of Johannesburg, South Africa</i>)</p>	<p>Non-linear Autoregressive Neural Network (NARNET) with SSA Filtering for an University Energy Consumption Forecast (ID: 217) Paul Adedeji, Stephen Akinlabi (<i>University of Johannesburg, South Africa</i>), Oluseyi Ajayi (<i>Covenant University, Nigeria</i>), Nkosinathi Madushele (<i>University of Johannesburg, South Africa</i>)</p>

Sessions

October 4, 2018 (Thursday), 14:30 – 15:45 (75 minutes)

Session 33: Sustainable Manufacturing Processes Manufacturing Processes, Tools and Equipment	Session 34: Sustainable Manufacturing Processes Energy and Resource Efficiency	Session 35: Student Competition Presentations	Session 36: Crosscutting Topics in Sustainable Manufacturing Industry 4.0 and Sustainable Manufacturing
Room Thoroughbred 5	Room Thoroughbred 6	Room Thoroughbred 7	Room Thoroughbred 8
Session Chair: TBA	Session Chair: TBA	Session Chair: TBA	Session Chair: TBA
<p>Belt Grinding of Cast Iron without Cooling Lubricant (ID: 23) Eckart Uhlmann, <u>Michael Bülter</u> (<i>Technische Universität Berlin, Germany</i>)</p>	<p>Continuous Trajectory Planning for Welding of Complex Joints Using Bezier Curve (ID: 162) <u>John Ogbemhe</u>, Khumbulani Mpofo, Nkgatho Tlale (<i>Tshwane University of Technology, South Africa</i>)</p>	<p>Development of a software tool to enable companies to detect potentials in remanufacturing <i>Suraj Mani Chaurasiya</i> (<i>Technische Universität Berlin, Germany</i>)</p>	<p>Induction Motor Condition Monitoring for Sustainable Manufacturing (ID: 220) Jianjing Zhang, Peng Wang, Robert X. Gao (<i>Case Western Reserve University, USA</i>), Chuang Sun, Ruqiang Yan (<i>Xi'an Jiaotong University, China</i>)</p>
<p>Increasing the Productivity and Quality of Flute Grinding Processes through the Use of Layered Grinding Wheels (ID: 30) Eckart Uhlmann, N. Schröer, <u>Arunan Muthulingam</u>, B. Gülzow (<i>Technische Universität Berlin, Germany</i>)</p>	<p>Rotary Friction Welding versus Fusion Butt Welding of Plastic Pipes – Feasibility and Energy Perspective (ID: 167) <u>Ramsey F. Hamade</u>, Tarek R. Andari (<i>American University of Beirut, Lebanon</i>), Ali H. Ammouri (<i>Lebanese American University, Lebanon</i>), I.S. Jawahir (<i>University of Kentucky, USA</i>)</p>		<p>Machine Learning in Cutting Processes as Enabler for Smart Sustainable Manufacturing (ID: 94) Anli du Preez, Gert Adriaan Oosthuizen (<i>Stellenbosch University, South Africa</i>)</p>
<p>Interaction of Tool and Workpiece in Ultrasonic-assisted Grinding of High Performance Ceramics (ID: 55) <i>Eckart Uhlmann, Joachim Bruckhoff</i> (<i>Technische Universität Berlin, Germany</i>)</p>	<p>A Fracture Mechanics Approach to Wire Design for Reduced Damage in Diamond Wire Sawn Silicon Wafers (ID: 276) <i>Arkadeep Kumar, Shreyes N. Melkote</i> (<i>Georgia Institute of Technology, USA</i>)</p>	<p>Structured Approach to Evaluating and Improving Product Sustainability: A Case Study with a 3D Printer <i>Darren Tosh, Peter Hong, Christian Enyoghasi, Brett Crosby, David Omotaya</i> (<i>University of Kentucky, USA</i>)</p>	<p>Methodology for the Sustainability-related Evaluation of Human-Robot Collaborations (ID: 92) <i>Uwe Götze, M. Schildt</i> (<i>Chemnitz University of Technology, Germany</i>), <u>Barbara Mikus</u> (<i>Leipzig University of Applied Sciences (HTWK), Germany</i>)</p>
<p>Sustainable Cooling and Lubrication Strategies in Machining Processes: A Comparative Study (ID: 141) <u>Hussien Hegab</u>, Hossam Kishawy (<i>University of Ontario Institute of Technology, Canada</i>), B. Darras (<i>American University of Sharjah, UAE</i>)</p>	<p>Drivers and Barriers for the Adoption of Eco-Design Practices in Pulp and Paper Industry: A Case Study of Finland (ID: 150) <i>Shqipe Buzuku, Tuomo Kässi</i> (<i>Lappeenranta University of Technology, Finland</i>)</p>		

Farewell and end of the 16th Global Conference on Sustainable Manufacturing

15:45