



**17<sup>th</sup> Global Conference on Sustainable Manufacturing**

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**Conference Program**  
October 9-11, 2019  
Tongji University, Shanghai  
China

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**October 8, 2019 (Tuesday)/ Pre-Conference**

<b>12:00 – 14:00</b>	<b>Bus Transfer</b>
<b>14:00 – 16:00</b>	<b>Harbor Tour / Container Port (dependent on participation)</b>
<b>16:00 – 18:00</b>	<b>Bus Transfer</b>
<b>19:00 – 21:00</b>	<b>Conference Reception</b>

**October 9, 2019 (Wednesday)**

<b>08:00 – 08:30</b>	<b>Registration at Conference Site</b>			
<b>08:30 – 09:00</b>	<b>Opening and Welcoming Speeches</b> Room: Main Hall			
<b>09:00 – 10:00</b>	<b>Keynote Session</b> Room: Main Hall			
09:00 – 09:30	<b>Sami Kara</b> <i>UNSW Sydney, Australia</i>	<b>Absolute Sustainability and the Role of Manufacturing in a Resource Constraint World</b>		
09:30 – 10:00	<b>Ralf Dieter</b> <i>CEO Dürr AG, Germany</i>	<b>Sustainable Manufacturing and Emission Reduction</b>		
10:00 – 10:30	<b>Volker Sauer</b> <i>R&amp;D BoschRexroth, Germany</i>	<b>Harmonizing Sustainability and Connected Solutions in the Factory of the Future</b>		
<b>10:30 – 11:00</b>	<b>Coffee Break</b>			
<b>11:00 – 12:30</b>	<b>Sessions</b>			
11:00 – 12:30	<b>Session 1: Sustainable Manufacturing Processes - Additive Manufacturing</b> Room: 1	<b>Session 2: Sustainable Manufacturing Systems - Energy efficiency</b> Room: 2	<b>Session 3: Sustainable Manufacturing Systems - Mobility Services</b> Room: 4	<b>Session 4: Sustainable Manufacturing Processes - Machine Tools 1</b> Room: 3
<b>12:30 – 13:30</b>	<b>Lunch</b>			
<b>13:30 – 15:00</b>	<b>Sessions</b>			
13:30 – 15:00	<b>Session 5: Sustainable Products - Product Design and Innovation</b> Room: 1	<b>Session 6: Sustainable Manufacturing Systems - Resource Efficiency</b> Room: 2	<b>Session 7: Sustainable Manufacturing Processes - Value from Waste</b> Room: 4	<b>Session 8: Sustainable Manufacturing Systems - Production Planning, Scheduling and Control</b> Room: 3
<b>15:00 – 15:30</b>	<b>Coffee Break</b>			
<b>15:30 – 17:30</b>	<b>Sessions</b>			
16:00 – 17:30	<b>Session 9: Crosscutting Topics in Sustainable Manufacturing - Sustainability at Regional Level</b> Room: 1	<b>Session 10: Sustainable Manufacturing Systems - Suppl Chain 1</b> Room: 2	<b>Session 11: Sustainable Manufacturing Systems - Strategy and Business Model</b> Room: 4	<b>Preparation Room</b> Room: 3
<b>18:30 – 22:30</b>	<b>Banquet on Ship</b>			

## Sessions

October 9, 2019 (Wednesday), 11:00 – 12:30 (90 minutes)

Session 1: Sustainable Manufacturing Processes Additive Manufacturing	Session 2: Sustainable Manufacturing Systems Energy Efficiency	Session 3: Sustainable Manufacturing Systems Mobility Services	Session 4: Sustainable Manufacturing Processes Machine Tools 1
Room 1	Room 2	Room 4	Room 3
Session Chair: Robert Gao	Session Chair: Ahmed Mohammed Abu Hanieh	Session Chair: Tetsuo Yamada	Session Chair: Ramsey Hamade
<b>Improvement of the Sustainability of Post Processing for Additive Manufacturing (ID: 114)</b> Mattia Mele, Giampaolo Campana (University of Bologna); Gian Luca Monti (Studio Pedrini) (Italy)	<b>Methodology for the Simulation based Energy Efficiency Assessment of Battery Cell Manufacturing Systems (ID: 137)</b> Max Weeber, <u>Johannes Wanner</u> (Fraunhofer IPA) (Germany)	<b>LEAN Mobility-The spirit of a future Lightweight, Efficient, Application-oriented and Need-adapted road mobility concept (ID: 81)</b> Jerome Kaspar, Jan-Henrik Schneberger, Michael Vielhaber (Saarland University) (Germany)	<b>Enhancing Single Channel MQL through Bypass Controlled Design for Deep Hole Drilling with Small Diameter Tools (ID: 52)</b> <u>Yongrong Li</u> , Ralf Domrös (SKF Lubrication Systems Germany GmbH) (Germany)
<b>Sustainability of industrial components using Additive Manufacturing and foam materials (ID: 186)</b> <u>Ines Dani</u> , Welf-Guntram Drossel, Nikolaus Milaev, Hannes Korn, Christian Hannemann, Joerg Hohlfeld Rafi Wertheim (Fraunhofer IWU) (Germany)	<b>Energy self-sufficient manufacturing systems-integration of renewable and decentralized energy generation systems (ID: 200)</b> <u>Julia Schulz</u> , Valerie Scharmera Michael Zaeh (Technical University of Munich) (Germany)	<b>Life Cycle Assessment for Servitization: A Case Study on Current Mobility Services (ID: 160)</b> <u>Chalaka Fernando</u> , Vi Kie Soo, Matthew Doolan (Australian National University) (Australia)	<b>Effects of Cooling Methods on the Specific Energy Consumption when Drilling CFRP/Ti6Al4V Stacks (ID: 132)</b> <u>Min Ji</u> , <u>Jinyang Xu</u> , Ming Chen (Shanghai Jiao Tong University) (China); Mohamed El Mansori (Arts et Métiers ParisTech) (France)
<b>Adoption and Diffusion of Disruptive Technologies: The Case of Additive Manufacturing in Medical Technology Industry in Australia (ID: 5)</b> Sam Tavassoli, Milan Brandt, Ma Qian, Pia Arenius (RMIT University) (Australia); Babak Kianian, Olaf Diegel (Lund University) (Sweden); Anne-Laure Mention, Ivan Cole, Aly Elghitany, <u>Leon Pope</u> (RMIT University) (Australia)	<b>Energy efficient process chains for the production of a powertrain (ID: 64)</b> Berend Denkena, Marc-André Dittrich, Maik Bergmeier, Miriam Handrup, Kolja Meyer, Laura Onken, <u>Christopher Schmidt</u> (Leibniz University Hannover) (Germany)	<b>Assessing the Environmental Impact of Novel Mobility Services using Shared Electric Scooters as an Example (ID: 76)</b> <u>Semih Severengiz</u> , Sebastian Finke, Nora Schelte (Bochum University of Applied Sciences) (Germany); Hayden Forrister (Tennessee State University) (USA)	<b>Sustainable manufacturing of prototype automotive gear components within a multi-axis machining platform (ID: 65)</b> Benjamin Peeters; Bert Lauwers (Catholic University of Leuven) (Belgium)
<b>Remote Lab meets Virtual Reality – Enabling immersive access to high tech laboratories from afar (ID: 227)</b> Pascalis Trentsios, Mario Wolf, Sulamith Frerich (Ruhr-University Bochum) (Germany)	<b>An energy assessment method for SMEs: case study of an Italian mechanical workshop (ID: 148)</b> <u>Roberto Menghi</u> , Giulia Di Domizio, Alessandra Papetti, Michele Germani (Marche Polytechnic University); Marco Marconi (Tuscia University) (Italy)		<b>Analysis of Productivity and Machining Efficiency in Sustainable Machining of Titanium Alloy (ID: 190)</b> <u>Aqib Mashood Khan</u> , Ning He, Liang Li, Wei Zhao, Muhammad Jamil (Nanjing University of Aeronautics and Astronautics) (China)

Lunch

12:30 – 13:30

## Sessions

October 9, 2019 (*Wednesday*), 13:30 – 15:00 (90 minutes)

Session 5: Sustainable Products Product Design and Innovation	Session 6: Sustainable Manufacturing Systems Resource Efficiency	Session 7: Sustainable Manufacturing Processes Value from Waste	Session 8: Sustainable Manufacturing Systems Production Planning, Scheduling and Control
Room 1	Room 2	Room 4	Room 3
Session Chair: Barbara Cimatti	Session Chair: Khumbulani Mpofo	Session Chair: Fazleena Badurdeen	Session Chair: Konstantinos Salonitis
<b>A balanced design for plural performances of technology, economy and environment in product design</b> (ID: 188) <u>Haruo Ishikawa</u> , Naoko Sasaki (University of Electro-Communications) ( <i>Japan</i> )	<b>Sustainable machining by energy-and resource-efficient application of metalworking fluids</b> (ID: 198) <u>Benedikt Seidel</u> , Carsten Heinzel, Daniel Meyer, Phillip Geilert, Bernard Karpuschewski (University of Bremen) ( <i>Germany</i> )	<b>Technology comparison for the production of fine rubber powder from end of life tyres</b> (ID: 111) <u>Stefan Hoyer</u> , Lothar Kroll (TU Chemnitz) ( <i>Germany</i> ); Dariusz Sykutera (University of Science and Technology in Bydgoszcz) ( <i>Poland</i> )	<b>Algorithm for High-Throughput Scheduling of Paced Sequences</b> (ID: 217) Alexander Bader, Niklas Kipry, Frederik Löggers, Kirsten Tracht (University of Bremen) ( <i>Germany</i> )
<b>Design of an automated maize de-husking machine for the case of Zimbabwe</b> (ID: 10) <u>Tawanda Mushiri</u> (University of Johannesburg) ( <i>South Africa</i> ); Melisa Nyakuchena (University of Zimbabwe) ( <i>Zimbabwe</i> )	<b>Energy and Resource efficiency analysis of manufacturing chains by modular process models and simulation</b> (ID: 131) <u>Ruediger Rentsch</u> , Bernhard Karpuschewski (University of Bremen) ( <i>Germany</i> )	<b>Making the Case for Reusable PET Bottles</b> (ID: 94) <u>Ramsey Hamade</u> , Robert Hadchity (AUB); Ali Ammouri (Lebanese American University) ( <i>Lebanon</i> )	<b>A multi-period mixed integer programming model on reconfigurable manufacturing cells</b> (ID: 155) <u>Takayuki Kataoka</u> (Kindai University) ( <i>Japan</i> )
<b>Design of A Smart Electric Cooking Stove</b> (ID: 203) Caiphas Svosvea (University of Zimbabwe) ( <i>Zimbabwe</i> ); <u>Loice Gudukeya</u> (University of Johannesburg) ( <i>South Africa</i> )	<b>Applying and producing Indexable End Mills: A comparative market study in context of resource efficiency</b> (ID: 82) Benjamin Thorenz, Friedrich Oßwald, <u>Sebastian Schötz</u> (University of Bayreuth); Hans Henrik Westermann (menschmaschine-werkzeug.de); Frank Döpfer (University of Bayreuth) ( <i>Germany</i> )	<b>Material Disposition and Scheduling in Regeneration Processes using Prognostic Data Mining</b> (ID: 140) <u>Tammo Heuer</u> , Torben Lucht, Peter Nyhuis (Leibniz University Hannover) ( <i>Germany</i> )	<b>Serious Game on Factory Planning for Higher Education</b> (ID: 237). <u>Mustafa Severengiz</u> , Günther Seliger, Jörg Krüger (Technical University of Berlin) ( <i>Germany</i> )
<b>Design of an industrial elevator: Power Station in Zimbabwe</b> (ID: 202) John Meda (University of Zimbabwe) ( <i>Zimbabwe</i> ); <u>Loice Gudukeya</u> (University of Johannesburg) ( <i>South Africa</i> )	<b>Research on Extended Carbon Emissions Accounting Method and its Application in Sustainable Manufacturing</b> (ID: 129) Liu Zhao-hui, Zhang Weimin, Xiao Zhong-yue, Sun Jia-bin, Li Dongdong (University of Tongji) ( <i>China</i> )	<b>A Location-routing Problem with Economic Efficiency for Recycling System</b> (ID: 197) <u>Hiroshi Kuroki</u> , Aya Ishigaki, Ryuta Takashima (Tokyo University of Science) ( <i>Japan</i> )	<b>A dynamic programming model for a Reconfigurable Vibrating Screen machine operations planning in a fluctuating market environment</b> (ID: 19) <u>Olasumbo Makinde</u> , Boitumelo Ramatsetse, Thomas Munyai (Tshwane University of Technology) ( <i>South Africa</i> )
	<b>Household's Satisfaction with Water Supply in Johannesburg Metropolitan Municipality, South Africa</b> (ID: 231) Pathiswa Mahlasela, Ayodeji Oke, <u>Nelson Sizwe Madonsela</u> (University of Johannesburg) ( <i>South Africa</i> )	<b>Symbiotic loss-free manufacturing in ultra-efficient urban industrial parks</b> (ID: 78) Ivan Bogdanov (Fraunhofer IPA); Michael Hertwig (Fraunhofer IAO); Marc Beckett (Fraunhofer IGB); Lara Waltersmann (Fraunhofer IPA) ( <i>Germany</i> )	

**Coffee Break**

15:00 – 15:30

## Sessions

October 9, 2019 (*Wednesday*), 15:30 – 17:30 (120 minutes)

Session 9: Crosscutting Topics in Sustainable Manufacturing Sustainability at Regional Level	Session 10: Sustainable Manufacturing Systems Supply Chain 1	Session 11: Sustainable Manufacturing Systems Strategy and Business Models	Preparation Room
Room 1	Room 2	Room 4	Room 3
Session Chair: Giampaolo Campana	Session Chair: Frank Straube	Session Chair: Holger Kohl	-
<b>Challenges of Coatings in Aerospace, Automobile and Marine Industries</b> (ID: 236) O.S.I. Fayomi (Covenant University) ( <i>Nigeria</i> )/ (Tshwane University of Technology) ( <i>South Africa</i> ); I.G. Akande (University of Ibadan) ( <i>Nigeria</i> ); A.O. Emmanuel (Covenant University) ( <i>Nigeria</i> )	<b>Design problem of economic carbon recovery and reduction by integrated supplier and disassembly part selections</b> (ID: 29) <u>Hayate Irie</u> , Yuki Kinoshita, Tetsuo Yamada (The University of Electro-Communications) ( <i>Japan</i> )	<b>Sustainable operations management through development of unit cost performance measurement</b> (ID: 225) <u>Anders Johansson</u> (Scania CV AB, University West); Linn Gustavsson (University West); Lars Pejryd (Örebro University) ( <i>Sweden</i> )	Preparation Room
<b>Students' Perceptions of the Implementation of Sustainable Campus Development Based on Landscape Concepts at Andalas University</b> (ID: 15) Nilda Tri Putri, Elita Amrina, Sri Nurnaeni (Andalas University) ( <i>Indonesia</i> )	<b>Development of a Decision Support System of the Cooperative Supply Chain in Consideration of Satisfaction of Multi-objective Multi-player</b> (ID: 215) <u>Aya Ishigaki</u> (Tokyo University of Science) ( <i>Japan</i> )	<b>Exploring Sustainability Implications of Manufacturing Strategy Decision Areas – A Case Study</b> (ID: 214) <u>Ganesh Prasad Shukla</u> , Gajendra Kumar Adil (Indian Institute of Technology) ( <i>India</i> )	
<b>Territorial Differentiation as the Factor of Sustainable Economic Development</b> (ID: 149) Vladimir Glinskiy, Lyudmila Serga, Mikhail Alekseev (Novosibirsk State University of Economics and Management) ( <i>Russia</i> )	<b>Efficiently Managing Supply Chain Volatility - A Management Framework for the Manufacturing Industry</b> (ID: 26) Benjamin Nitsche, <u>Frank Straube</u> (Technical University of Berlin) ( <i>Germany</i> )	<b>Demand planning strategies for the control of energy flexible components of machine tools</b> (ID: 71) <u>Valerie Scharmer</u> , Julia Schulz (Technical University of Munich) ( <i>Germany</i> )	
<b>Towards a Sustainability Model for Olive Sector in Palestine</b> (ID: 4) <u>Ahmed Abu Hanieh</u> , Mohammad Karaeen, Afif Aqel (Birzeit University) ( <i>Palestine</i> )	<b>The murky waters of outsourcing: critical risks factors of outsourcing pharmaceutical outbound value chains</b> (ID: 182) Solomon Aigbavboa, Charles Mbohwa (University of Johannesburg) ( <i>South Africa</i> )	<b>An approach to estimate the backorder penalty cost of a manufacturing company</b> (ID: 16) <u>Olasumbo Makinde</u> , Thomas Munyai (Tshwane University of Technology) ( <i>South Africa</i> )	
<b>Economic-Based Sustainability Assessment of Aluminum Roofing Sheet Manufacturing/Life Cycle and Plant Sizing in Nigeria</b> (ID: 191) <u>Paul Ozor</u> , Charles Mbohwa (University of Johannesburg) ( <i>South Africa</i> )	<b>The headache of medicines' supply in Nigeria: an exploratory study on the most critical challenges of pharmaceutical outbound value chains</b> (ID: 167) Solomon Aigbavboa, Charles Mbohwa (University of Johannesburg) ( <i>South Africa</i> )	<b>Integration of the Management Information System for Competitive Positioning</b> (ID: 229) <u>Nelson Sizwe Madonsela</u> (University of Johannesburg) ( <i>South Africa</i> )	

<p><b>An Investigation into Industrial Manufacturing and Sustainable Production Implementation in sub-Saharan Africa</b> (ID: 183) Peter Onu, <u>Charles Mbohwa</u> (University of Johannesburg) (<i>South Africa</i>)</p>	<p><b>Reaching the patients with difficulty: a Delphi study on pharmaceutical outbound supply chains in Nigeria.</b> (ID: 212) Solomon Aigbavboa, Charles Mbohwa (University of Johannesburg) (<i>South Africa</i>)</p>	<p><b>Open innovation practices and its effects on sustainability innovation performance under absorptive capacity: evidence from most innovative factories in USA</b> (ID: 219) Selma Oliveira (Fluminense Federal University) (<i>Brazil</i>)</p>	
<p><b>Green Reformation of Chinese Traditional Manufacturing Industry: Mode und Approach Studies</b> (ID: 184) Frida Li, Tao Zhang (German-Sino Green Manufacturing Association) (Germany); Qian Sha, Xin Pei, Yizhi Song, Chao Li (CEPREI Research Institute) (<i>China</i>)</p>		<p><b>What is the next frontier in sustainability? Product innovation radicality and extensivity of flexibility in sustainable manufacturing system: how flexibility affects the performance of most innovative factories in the USA</b> (ID: 221) Selma Oliveira (Fluminense Federal University) (<i>Brazil</i>)</p>	

**October 10, 2019 (Thursday)**

<b>08:00 – 08:30</b>	<b>Registration at conference site</b>			
<b>08:30 – 10:00</b>	<b>Keynote Session</b> Room: Main Hall			
08:30 – 09:00	<b>Li Jing</b> <i>CUEB Beijing, China</i>	<b>Common development-Understanding Belt &amp; Road Initiative in Context of New Normal</b>		
09:00 – 09:30	<b>Achim Feinauer</b> <i>CEO EMAG Holding, Germany</i>	<b>Sustainable Manufacturing as a business case for a machine tool builder</b>		
09:30 – 10:00	<b>Holger Kohl</b> <i>Technical University of Berlin, Germany</i>	<b>Increasing Challenges for Sustainability for Manufacturing Industry based on Global, National and Technological Initiatives</b>		
<b>10:00 – 10:30</b>	<b>Coffee Break</b>			
<b>10:30– 12:30</b>	<b>Sessions</b>			
10:30 – 12:30	<b>Session 12: Sustainable Products-Life Cycle and Decision Making</b> Room: 1	<b>Session 13: Sustainable Manufacturing Processes-Machine Tools 2</b> Room: 2	<b>Session 14: Sustainable Manufacturing Systems - Industry 4.0</b> Room: 4	<b>Session 15: Sustainable Manufacturing Processes- Assembly and Manufacturing</b> Room: 3
<b>12:30 – 13:30</b>	<b>Lunch</b>			
<b>13:30– 15:30</b>	<b>Sessions</b>			
13:30– 15:30	<b>Session 16: Sustainable Products-Circular Economy</b> Room: 1	<b>Session 17: Sustainable Manufacturing Systems - Surfaces Handling and Manufacturing Processes</b> Room: 2	<b>Session 18: Sustainable Manufacturing Processes-Maintenance</b> Room: 4	<b>Sustainability oriented student projects - Presentation and Discussions</b> Moderation by Michael Abramovici, Li Jing and Günther Seliger Room: 3
<b>15:30 – 16:00</b>	<b>Coffee Break</b>			
<b>16:00 – 17:30</b>	<b>Sessions</b>			
16:00 – 17:30	<b>Session 19: Crosscutting Topics in Sustainable Manufacturing - Metrics for Sustainable Manufacturing</b> Room: 1	<b>Session 20: Sustainable Manufacturing Processes-Remanufacturing Processes</b> Room: 2	<b>Session 21: Sustainable Manufacturing Systems Supply Chain 2</b> Room: 4	<b>Sustainability oriented student projects- Presentation and Discussions-Continuation</b> Room: 3
<b>17:30 – 23:00</b>	<b>Open for Multilateral Exchange of Ideas</b>			



## Sessions

October 10, 2019 (*Thursday*), 10:30 – 12:30 (120 minutes)

Session 12: Sustainable Products Life Cycle and Decision Making	Session 13: Sustainable Manufacturing Processes Machine Tools 2	Session 14: Sustainable Manufacturing Systems Industry 4.0	Session 15: Sustainable Manufacturing Processes Assembly and Manufacturing Processes
Room 1	Room 2	Room 4	Room 3
Session Chair: Min Junying	Session Chair: Bert Lauwers	Session Chair: Sami Kara	Session Chair: Jack Hu
<p><b>A comprehensive and interdisciplinary perspective on sustainable manufacturing towards sustainable life cycles</b> (ID: 185)  <u>Marion Früchtl</u>, <u>Miriam Leis</u> (Fraunhofer Society for the Advancement of Applied Research); <u>Rafi Wertheim</u> (Fraunhofer IWU) (<i>Germany</i>)</p>	<p><b>Milling of Ti6Al4V with carbon dioxide as carrier medium for minimum quantity lubrication with different oils</b> (ID: 25)  <u>Daniel Gross</u>, <u>Markus Blauhöfer</u>, <u>Nico Hanenkamp</u> (University of Erlangen-Nürnberg) (<i>Germany</i>)</p>	<p><b>Towards Deep Learning in Industrial Applications Taking Advantages of Service-Architectures</b> (ID: 79)  <u>Clemens Briese</u>, <u>Marian Schlüter</u>, <u>Jan Lehr</u> (Fraunhofer IPK); <u>Katarina Maurer</u> (Musterfabrik Berlin GmbH); <u>Jörg Krüger</u> (Technical University of Berlin) (<i>Germany</i>)</p>	<p><b>An Investigation of Process Performance when Drilling Carbon Fiber Reinforced Polymer (CFRP) Composite under Dry, Cryogenic and MQL Environments</b> (ID: 224)  <u>Arjun Nagaraj</u> (University of Kentucky); <u>Alper Uysal</u> (Yildiz Technical University) (<i>Turkey</i>); <u>I. S. Jawahir</u> (University of Kentucky) (<i>USA</i>)</p>
<p><b>Exploring product lifecycle using Markov chain</b> (ID: 58)  <u>Feri Afrinaldi</u> (Andalas University) (<i>Indonesia</i>)</p>	<p><b>Trochoid milling with industrial robots</b> (ID: 130)  <u>Eckart Uhlmann</u>, <u>Sascha Reinkober</u>, <u>Martin Hoffmann</u>, <u>Peer Käpernick</u> (Fraunhofer IPK) (<i>Germany</i>)</p>	<p><b>Multi-stream convolutional neural network-based fault diagnosis for variable frequency drives in sustainable manufacturing systems</b> (ID: 56)  <u>John Grezma</u>, <u>Jianjing Zhang</u>, <u>Peng Wang</u>, <u>Robert X. Gao</u> (Case Western Reserve University) (<i>USA</i>)</p>	<p><b>Life cycle Inventory of NiCrAl/NiCr-Cr3C2 Composite Coatings for Plasma Spraying Process</b> (ID: 210)  <u>Jing Liu</u>, <u>Liming Wang</u>, <u>Fangyi Li</u>, <u>Xueju Ran</u>, <u>Xin Peng</u> (Shandong University) (<i>China</i>)</p>
<p><b>Risk-informed simulation for sustainable product design decision making</b> (ID: 226)  <u>Christian Enyoghasi</u>, <u>Fazleena Badurdeen</u> (University of Kentucky) (<i>USA</i>)</p>	<p><b>Sustainable machining: Assessment of environmental performance of milling</b> (ID: 218)  <u>Manoj Kurukulasuriya</u>, <u>Janaka Gamage</u>, <u>Janaka Mangala</u> (University of Moratuwa) (<i>Sri Lanka</i>)</p>	<p><b>Quality Prediction of Reamed Bores Based on Process Data and Machine Learning Algorithm: A Contribution to a More Sustainable Manufacturing</b> (ID: 35)  <u>Sebastian Schorr</u> (Saarland University); <u>Matthias Möller</u>, <u>Jörg Heib</u> (Bosch Rexroth); <u>Shiqi Fang</u>, <u>Dirk Bähre</u> (Saarland University) (<i>Germany</i>)</p>	<p><b>Sustainable polypropylene nanocomposite for lightweight and low thermal conductivity application</b> (ID: 110)  <u>Chukwunonso Uwa</u>, <u>Sadiku Rotimi</u>, <u>Jamiru Tamba</u>, <u>Huan Zhongjie</u>, <u>Khumbulani Mpofu</u>, <u>Y. Hamam</u>, <u>I. Ibrahim</u>, <u>Boitumelo Ramatsetse</u> (Tshwane University of Technology) (<i>South Africa</i>)</p>
<p><b>Conceptual design scheme automatic generation and decision-making considering green demand</b> (ID: 47)  <u>Yan Fu</u>, <u>Liming Wang</u>, <u>Long Li</u> (Shandong University) (<i>China</i>)</p>	<p><b>Resource consumption and process performance in minimum quantity lubricated milling of tool steel</b> (ID: 145)  <u>Chris M Taylor</u> (University of Sheffield) (<i>UK</i>); <u>Tom Simpson</u> (ETH Zürich) (<i>Switzerland</i>); <u>Pete Crawforth</u> (University of Sheffield) (<i>UK</i>)</p>	<p><b>Time-energy Optimal Trajectory Planning for Collaborative Welding Robot with Multiple Manipulators</b> (ID: 196)  <u>Xuemei Liu</u>, <u>Chengrong Qiu</u>, <u>Qingfei Zeng</u>, <u>Aiping Li</u>, <u>Nan Xie</u> (University of Tongji) (<i>China</i>)</p>	<p><b>Self-Driving Chassis for Low-Invest and Highly Flexible Electric Vehicle Assembly</b> (ID: 20)  <u>Marius Wenning</u>, <u>Sebastian Kawollek</u>, <u>Achim Kampker</u> (RWTH Aachen University) (<i>Germany</i>)</p>

<p><b>Life Cycle Analysis of AA Alkaline Batteries</b> (ID: 93)  Ramsey Hamade, Sleiman El Masri, Raghid Al Ayache, Makram Bou Ghanem (American University of Beirut); Ali Ammouri (Lebanese American University) (<i>Lebanon</i>)</p>	<p><b>Finite element modeling of high-speed milling 7050-T7451 alloys</b> (ID: 156)  Xianghui Huang, Jinyang Xu, Ming Chen (Shanghai Jiao Tong University); Fei Ren (Shanghai Aerospace Equipments Manufacturer Co., Ltd) (<i>China</i>)</p>	<p><b>Cyber-physical System Enabled in Sustainable Waste Management 4.0: A Smart Waste Collection System for Indonesian Semi-Urban Cities</b> (ID: 178)  Yun Arifatul Fatimah, Andi Widiyanto, Muhtar Hanafi (Universitas Muhammadiyah Magelang) (<i>Indonesia</i>)</p>	<p><b>Simulation of kinematic hardening models for AISI 1035 weld stress prediction during welding assembly of the lower brackets of a rail car</b> (ID: 50)  Ilesanmi Afolabi Daniyan, Khumbulani Mpofu, F: Fameso (Tshwane University of Technology) (<i>South Africa</i>); Adeodu, A. O. (Afe Babalola University Ado-Ekiti) (<i>Nigeria</i>)</p>
<p><b>The conceptual framework of IoT based decision support system for life cycle management</b> (ID: 223)  Kamalakkannan Sivappirakasam, <u>Asela Kulatunga</u>, L. Bandara (University of Peradeniya) (<i>Sri Lanka</i>)</p>	<p><b>Investigation of the influence of surface waviness of milled aluminum on the burnishing quality of a combined process</b> (ID: 70)  <u>Marco Posdlich</u>, Rico Stöckmann, Philipp Klimant, Matthias Putz (Chemnitz University of Technology) (<i>Germany</i>)</p>	<p><b>Characteristics and Skills of Leadership in the Context of Industry 4.0</b> (ID: 146)  Valeria Guzmán (University of São Paulo) (<i>Brazil</i>); <u>Bernd Muschard</u> (Technical University of Berlin) (<i>Germany</i>), Mateus Gerolamo (University of São Paulo) (<i>Brazil</i>), Holger Kohl (Technical University of Berlin) (<i>Germany</i>), Henrique Rozenfeld (University of São Paulo) (<i>Brazil</i>)</p>	<p><b>Prediction of Postural Disposition Impact on Manual Assembly Performance: A Workshop Case Study</b> (ID: 150)  Thierry Yonga, Grace Kanakana-Katumba, Khumbulani Mpofu (Tshwane University of Technology) (<i>South Africa</i>)</p>
<p><b>Development and Utilization of a Framework for Data-Driven Life Cycle Management of Battery Cells</b> (ID: 142)  <u>Soumya Singh</u>, Max Weeber (Fraunhofer IPA) (<i>Germany</i>)</p>	<p><b>Analysis of Effect of Sustainable Lubricants in the Turning of AISI 304 Stainless Steel</b> (ID: 135)  Dau Majak, <u>Ezutah Olugu</u> (UCSI University) ((<i>Malaysia</i>); Sunday Albert Lawal (Federal University of Technology Minna) (<i>Nigeria</i>)</p>		<p><b>Variable Valve Timing for a Camless Stepping Valve Engine</b> (ID: 106)  Ishmael Zibani, Rapelang Marumo (University of Botswana); Joseph Chuma (Botswana International University of Science and Technology); Ibo Ngebani, Kelebaone Tsamaase (University of Botswana) (<i>South Africa</i>)</p>
<p><b>Lunch</b>  12:30 – 13:30</p>			

## Sessions

October 10, 2019 (*Thursday*), 13:30 – 15:30 (120 minutes)

Session 16: Sustainable Products Circular Economy	Session 17: Sustainable Manufacturing Processes Surfaces Handling and Manufacturing Processes	Session 18: Sustainable Manufacturing Processes Maintenance	Sustainability-oriented Student Projects Presentation and Discussion
Room 1	Room 2	Room 4	Room 3
Session Chair: Haruo Ishikawa	Session Chair: I.S. Jawahir	Session Chair: Zhang Weimin	Moderators: Michael Abramovici, Li Jing and Günther Seliger
<b>Customizing Products through Remanufacturing-Ideation of a Concept</b> (ID: 216) Jan Koller, Christoph Velte (Fraunhofer IPA); <u>Sebastian Schötz</u> , Frank Döpfer (University of Bayreuth) ( <i>Germany</i> )	<b>Equivalence analysis of plastic surface materials and comparable sustainable surfaces by a multisensory measurement system</b> (ID: 28) <u>Lars Gussen</u> , Max Ellerich, Robert Schmitt (RWTH Aachen University) ( <i>Germany</i> )	<b>Avoiding Environmental Consequences of Equipment Failure via an LSTM-Based Model for Predictive Maintenance</b> (ID: 101) <u>Haiyue Wu</u> , Aihua Huang, John Sutherland (Purdue University) ( <i>USA</i> )	<i>Understanding the world – How to avoid poverty in my country? (Beijing, China/ Li Jing)</i>
<b>Remanufacture for sustainability: assessing the barriers and proposing solutions to promote automotive remanufacturing</b> (ID: 66) Hasith Gunasekara, <u>Janaka Gamage</u> , Himan Punchihewa (University of Moratuwa) ( <i>Sri Lanka</i> )	<b>Influence of the stiffness of burnishing tools on process force and surface quality of EN AW-2007 and C45 work pieces</b> (ID: 69) <u>Rico Stöckmann</u> , Marco Posdich, Philipp Klimant, Matthias Putz (Chemnitz University of Technology) ( <i>Germany</i> )	<b>Fuzzy Multi Criteria Approach for Sustainable Maintenance Performance Evaluation in Cement Industry</b> (ID: 154) <u>Elita Amrina</u> , Insannul Kamil, Dhova Aridharma (Andalas University) ( <i>Indonesia</i> )	<i>Discussion</i>
<b>Challenges and solutions in automated disassembly and condition-based remanufacturing of lithium-ion battery modules for a circular economy</b> (ID: 12) <u>Jens Schäfer</u> , Ramona Singer, Janna Hofmann, Jürgen Fleischer (Karlsruhe Institut für Technologie) ( <i>Germany</i> )	<b>Influence of the nanoscopic surface roughness of DLC tool coatings on dry forming processes of aluminum</b> (ID: 228) Tim Abraham, G. Bräuer (Fraunhofer IST); Felix Flegler, Peter Groche (Technical University of Darmstadt); Matthias Demmler (Fraunhofer IWU) ( <i>Germany</i> )	<b>A proposed preventive maintenance scheduling using modularity design method towards lime stone crusher machine in Mining Department of Cement Industry</b> (ID: 133) Nilda Tri Putri, Taufik, And Filly Satria Buana (Andalas University) ( <i>Indonesia</i> )	<i>Enabling for skilled work by learning factory in railway maintenance and repair (Pretoria, South Africa / Khumbulani Mpofo)</i>
<b>Analysis of Potential Economic and Environmental Effects through Remanufacturing of Construction Equipment in Korea</b> (ID: 147) <u>Yong-Sung Jun</u> , Hyun-Jung Jo, Young-Chun Kim, Hong-Yoon Kang (KITECH); Yong-Woo Hwang, Young-Won Kim (Inha University) ( <i>South Korea</i> )	<b>Sustainable Optimisation of a Carousel for Foundry Processes</b> (ID: 113) Giampaolo Campana, Mattia Mele, Barbara Cimatti (University of Bologna) ( <i>Italy</i> )	<b>Improving MRO order processing by means of advanced technological diagnostics and data mining approaches</b> (ID: 127) <u>Melissa Seitz</u> , Torben Lucht (Leibniz University Hannover) ( <i>Germany</i> ); Christian Keller (MTU Maintenance Hannover GmbH) ( <i>Germany</i> ); Christian Ludwig (MTU Maintenance Canada Ltd.) ( <i>Canada</i> ); Rainer Strobelt (Siemens AG); Peter Nyhuis (Leibniz University Hannover) ( <i>Germany</i> )	<i>Discussion</i>

	<p><b>Performance of interlaminar flax-carbon hybrids under bending</b> (ID: 211)  <u>Lee Heow Pueh</u>, Umeyr Kureemun (National University of Singapore) (<i>Singapore</i>);  Mohammad Ravandi (K. N. Toosi University of Technology) (<i>Iran</i>);  Wern Sze Teo (Singapore Institute of Manufacturing Technology) (<i>Singapore</i>)</p>	<p><b>Empirical and Distribution Approaches for Analyzing Reliability and Maintainability of Radial Compressors in Oil and Gas Systems</b> (ID: 194)  <u>Paul Ozor</u> (University of Johannesburg) (<i>South Africa</i>)</p>	<p><i>Environmentally and economically advantageous plastics recycling (Kentucky, USA/ Fazleena Badurdeen)</i></p>
			<p><i>Discussion</i></p>
<p>Coffee Break  15:30 – 16:00</p>			

## Sessions

October 10, 2019 (Thursday), 16:00 – 17:30 (90 minutes)

Session 19: Cross Cutting Topics on Sustainable Manufacturing Metrics for Sustainable Manufacturing	Session 20: Sustainable Manufacturing Processes Remanufacturing Processes	Session 21: Sustainable Manufacturing Systems Supply Chain 2	Sustainability oriented student projects-Presentation and Discussions
Room 1	Room 2	Room 4	Room 3
Session Chair: Stefan Hoyer	Session Chair: Semih Severengiz	Session Chair: Ömer Sahin Ganiyusufoglu	Moderators: Michael Abramovici, Li Jing and Günther Seliger
<b>Sustainability-Based Evaluation of Casting Gating Systems: A Multi-Criteria Decision-Making Approach</b> (ID: 13) Michail Papanikolaou, Emanuele Pagone, <u>Konstantinos Salonitis</u> , Mark Jolly (Cranfield University) ( <i>UK</i> )	<b>Knowledge Based Eco-Efficiency Improvement in Remanufacturing Processing Systems</b> (ID: 141) Wenhao Huang, <u>Zhigang Jiang</u> , Han Wang, Hua Zhang (Wuhan University of Science & Technology); Xiaoli Hu (Shanghai Dianji University) ( <i>China</i> )	<b>Sustainable supply chains – digital transformation technologies’ impact on the social and environmental dimension</b> (ID: 34) <u>Anna Lisa Junge</u> , Frank Straube (Technical University of Berlin) ( <i>Germany</i> )	<i>Help for self-help by mobile makerspace (Berlin, Germany/ Seliger and Kohl)</i>
<b>Life Cycle Sustainability Assessment for manufacturing – analysis of existing approaches</b> (ID: 24) <u>Anika Schramm</u> , Fanny Richter, Uwe Götze (Technical University of Chemnitz) ( <i>Germany</i> )	<b>Effect of porosity on wear properties of remanufactured Cr3C2-NiCr coatings under oil lubrication</b> (ID: 57) <u>Xueju Ran</u> , Jiantong Shang, Liming Wang, Xingyi Zhang (Shandong University) ( <i>China</i> )	<b>Development of a supplier assessment form for an electronic product manufacturing organization</b> (ID: 18) Olasumbo Makinde, Refentse Selepe, <u>Thomas Munyai</u> (Tshwane University of Technology); Kem Ramdass (University of South Africa) ( <i>South Africa</i> )	<i>Discussion</i>
<b>Multi-Criteria Optimization in the Production of Lithium-Ion Batteries</b> (ID: 201) <u>Thomas Kornas</u> (BMW Group; Technical University of Braunschweig); Dominik Wittmann (Technical University of Dortmund); Rüdiger Daub (BMW Group); Oliver Meyer, Claus Weihs (Technical University of Dortmund); Sebastian Thiede, Christoph Herrmann (Technical University of Braunschweig) ( <i>Germany</i> )	<b>Factors causing strong adhesion of carbonaceous deposits on valve stem for remanufacturing of diesel engines</b> (ID: 49) <u>Xing Wang</u> , Mingliang Ma, Jianfeng Li, Xiujie Jia, Sheng Xiong (Shandong University) ( <i>China</i> )	<b>Performance assessment of the supply chain system of a food industry using a Questionnaire-based approach</b> (ID: 17) Olasumbo Makinde, Tebogo Mowandi, <u>Thomas Munyai</u> (Tshwane University of Technology); Michael Ayomoh (University of Pretoria) ( <i>South Africa</i> )	<i>Enhanced learning productivity by augmented reality in assembly (Berlin, Germany/ Seliger and Kohl)</i>
<b>Influences of TPM and TQM Practices on Performance of Engineering Product and Component Manufacturers</b> (ID: 179) <u>Saumyaranjan Sahoo</u> (Jaipuria Institute of Management); Sudhir Yadav (Pandit Deendayal Petroleum University) ( <i>India</i> )	<b>Review of research on cleaning technology for remanufacturing industry</b> (ID: 192) Zhang Baocai, Jia Xiujie, Ma Mingliang, Xiong Sheng, Xin Benli (Shandong University) ( <i>China</i> )		<i>Discussion</i>

**October 11, 2019 (Friday)**

<b>08:00 – 08:30</b>	<b>Registration at conference site</b>	
<b>08:30 – 10:00</b>	<b>Keynote Session</b> Room: Main Hall	
08:30 – 09:00	<b>Jack Hu</b> <i>University of Georgia, USA</i>	<b>Joining of light-weight and dissimilar materials for Transportation Fuel Efficiency and Sustainability</b>
09:00 – 09:30	<b>Christoph Stark</b> <i>CEO imes-icore, Germany</i>	<b>Shortest path from scan to tooth</b>
09:30 – 10:00	<b>Matthias Weigele</b> <i>CEO EWS GmbH, Germany</i>	<b>Heart for Children: Education in Uganda</b>
<b>10:00 – 10:30</b>	<b>Farewell and Outlook GCSM 2020</b> Holger Kohl ( <i>Technische Universität Berlin, Germany</i> ) Room: Main Hall	
<b>10:30 – 11:00</b>	<b>Coffee Break</b>	
<b>11:00 – 12:30</b>	<b>Institute of Environment for Sustainable Development (IESD)</b> <b>on Campus guided by the Vice Dean Wang Xin</b>	
<b>12:30 – 13:30</b>	<b>Lunch</b>	
<b>13:30 – 14:00</b>	<b>Industry tour bus transfer</b>	
<b>14:00 – 16:30</b>	(1) Visit to CDHK (Sino German School for Postgraduate Studies), including to the Sino German Innovation Lab (CDI)  or  (2) Industry Tour to iSESOL	
<b>16:30 – 17:00</b>	<b>Industry tour bus transfer</b>	