



15th Global Conference on Sustainable Manufacturing

- Decoupling Growth from Resource Use -

Programme

25th - 27th September 2017

Haifa

Israel

September 25th 2017, Monday

08:00 – 08:30	Registration at conference site			
08:30 – 09:00	Opening and Welcoming Speeches <i>Conference Room: tbd</i>			
08:30 – 09:00	Günther Seliger, Chairman Peretz Lavie, Technion President <i>Ministry of Environmental Protection</i> Stef Wertheimer, Honorary Chairman			
09:00 – 10:30	Keynotes <i>Conference Room: tbd</i>			
09:00 – 09:30	Frank Treppe <i>Director International Affairs and Research Programs Fraunhofer</i>	Industrie 4.0 - From a Perspective of Applied Research		
09:30 – 10:00	Alon Wolf <i>Technion</i>	Technological challenges in Medical Robotics for Surgery and Patient Specific Treatment		
10:00 – 10:30	Shahin Rahimifard <i>Loughborough University</i>	Net Positive Manufacturing : A Restoring, Self-healing and Regenerative Approach to Future Industrial Development		
10:30 – 10:45	Announcement of GCSM 2018			
10:45 – 11:00	Coffee Break			
11:00 – 13:00	Paper and Workshop Sessions			
11:00 – 13:00	Paper Session 1: Forming <i>Conference Room: tbd</i>	Paper Session 2: Education <i>Conference Room: tbd</i>	Student Session 1: Technion <i>Conference Room: tbd</i>	Workshop Session 1: tbd <i>Conference Room: tbd</i>
13:00 – 14:00	Lunch			
14:00 – 15:30	Paper Sessions			
14:00 – 15:30	Paper Session 3: Planning <i>Conference Room: tbd</i>	Paper Session 4: Business Models <i>Conference Room: tbd</i>	Workshop Session 1: Learning for the fourth industrial revolution: a virtual factory learnstrument Moderators: Henrique Rozenfeld, Omar Chaim and Bernd Muschard <i>Conference Room: tbd</i>	
15:30 – 16:00	Coffee Break			
16:00 – 17:00	Paper Sessions			
16:00 – 17:00	Paper Session 5: Machine Tools <i>Conference Room: tbd</i>	Paper Session 6: Robotics <i>Conference Room: tbd</i>	Paper Session 7: Energy Efficiency <i>Conference Room: tbd</i>	Paper Session 8: Technology <i>Conference Room: tbd</i>
17:00 – 19:00	Trip to Baha'i and German Colony			

Paper and Workshop Session
September 25th, Monday, 11:00 – 13:00

Paper Session 1: Forming	Paper Session 2: Education	Student Session: Technion	Workshop Session 1: Environmental Workshop
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (University)	Session Chair: Name (University)	Moderators: Names (Institution)	Moderators: Names (Institution)
Evaluation of manufacturing processes for the production of graded ultrafine grained materials (ID: 160) <i>René Selbmann, Anja Schmidt, Uwe Götze, Dirk Landgrebe, Markus Bergmann</i>	Influence of Gaming Elements on Examination in Sustainable Factory Planning (ID: 178) <i>Mustafa Severengiz, Ina Roeder, Günther Seliger</i>		
Development of a Model for Predicting Cycle Time in Hot Stamping (ID: 168) <i>Rumbidzai Muvunzi, DM Dimitrov, S. Matope, TM Harms</i>	Including Sustainability in a Virtual Learning Environment (ID: 69) <i>Omar C. Chaim, Bernd Muschard, Edson Cazarini, Henrique Rozenfeld</i>		
A die profile for maximum efficiency in strip drawing of anisotropic materials (ID: 105) <i>Sergei Alexandrov</i>	Exploring gamification to support manufacturing education on industry 4.0 as an enabler for innovation and sustainability (ID: 97) <i>Esdras Paravizo, Omar C. Chaim, Daniel Braatz, Henrique Rozenfeld, Bernd Muschard</i>		
Optimisation of the Casting Technology and Sustainable Manufacture of 100mm Grinding Balls for the Mining Sector in Zimbabwe (ID: 40) <i>Wilson R. R. Nyemba, Ranganai T. Moyo, Charles Mbohwa</i>	Application of design and innovation to reshape engineering curricula for sustainable manufacturing (ID: 177) <i>Pinar Bilge</i>		
Modified Cross-Wedge Rolling to Create Hollow Shafts (ID: 120) <i>Juergen Steger, Dirk Landgrebe, Uwe Böhmichen, Markus Bergmann</i>	First proof of concept for language independent learnstruments in special machinery (ID: 117) <i>Jan P Menn, Carsten Ulbrich, Günther Seliger</i>		
Laser Beam Forming: a Sustainable Manufacturing Process (ID: 186) <i>Stephen Akinlabi, Esther Akinlabi</i>			

Lunch
13:00 – 14:00

Paper and Student Sessions
September 25th, Monday, 14:00 – 15:30

Paper Session 3: Planning	Paper Session 4: Business Models	Student Session 1: Learning for the Fourth Industrial Revolution: a Virtual Factory Learnstrument
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (<i>University</i>)	Session Chair: Name (<i>University</i>)	Moderators: Henrique Rozenfeld, Omar Chaim (<i>Universidade de Sao Paulo</i>), Bernd Muschard (<i>Technische Universität Berlin</i>)
On the track of human errors - Procedure and results of an innovative assembly planning method (ID: 2) <i>Robert Refflinghaus, Christian Kern</i>	Product, service, and business model innovation: A discussion (ID: 49) <i>Martin Geissdoerfer, Doroteya Vladimirova, Steve Evans</i>	<p>The innovations towards an Industry 4.0 are having a disruptive influence on the manufacturing industry by establishing an interplay of smart factories, smart products and smart services embedded in an internet of things and services also called industrial internet. Meeting the future needs for learning and in-work training requires the development of new learning conductive technologies, materials and methods.</p> <p>Through the usage of a new developed Learnstrument and guided discussions, this workshop aims to clarify some of the significant changes that follow the transition towards Industry 4.0 in an interactive manner. Participants will be challenged in a virtual environment where they have to solve industrial issues using tools and practices of Industry 4.0. After each challenge, a short discussion will follow regarding the applied approaches and their relation to the fourth industrial revolution. To close the workshop, a discussion on the learning method itself will be held.</p>
Decentralized intelligence: The key for an energy efficient and sustainable intralogistics (ID: 102) <i>Michael Scholz, Xu Zhang, Sven Kreitlein, Jörg Franke</i>	Knowledge management solution framework for the long-term complaint knowledge transfer to product development (ID: 131) <i>Thomas Hellebrandt, Ina Heine, Robert Schmitt</i>	
Project Flywheel - Taking the Next Step towards Practical Industrial Innovation (ID: 142) <i>Ruth Dagan</i>	How sustainable business models and firm capabilities co-evolve to shape industrial symbiosis development: a validated theoretical framework (ID: 158) <i>Hanmin Huang, Yongjiang Shi</i>	
A road map for applied data sciences supporting sustainability in advanced manufacturing: the information quality dimensions (ID 183) <i>Ron S. Kenett, Avigdor Zonnashain, Gilead Fortuna</i>	Challenges and Opportunities in Adopting and Implementing Sustainability Plans in Engineering, Mining and Processing Companies in Zimbabwe (ID: 65) <i>Wilson R. R. Nyemba, Charles Mbohwa</i>	
Coffee Break 15:30 – 16:00		

Paper Sessions
September 25th, Monday, 16:00 – 17:00

Paper Session 5: Machine Tool	Paper Session 6: Robotics	Paper Session 7: Energy Efficiency	Paper Session 8: Technology
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)
Evaluation of thermo-energetic behaviour for demand-oriented operating of machine tool cooling systems (ID: 76) <i>Joachim Regel, Matthias Putz, Volker Wittstock, Du Xu</i>	Optimizing step climbing by two connected wheeled inverted pendulum robots (ID: 144) <i>Uri Ben Hanan, Avi Weiss</i>	Energy and material efficiency metrics in foundries (ID: 51) <i>Emanuele Pagone, Konstantinos Salonitis, Mark Jolly</i>	Cryogenic Machining through the Spindle and Tool for Improved Machining Process Performance and Sustainability: Pt. I, System Design (ID: 174 and 175) <i>Tao Lu, Ravikumar Kudaravalli, George Georgiou</i>
Reconfigurable machine tool: CNC machine for milling, grinding and polishing (ID: 98) <i>Yair Shneor</i>	Jumping efficiency of small creatures and its applicability in robotics (ID: 147) <i>Avi Weiss, Uri Ben Hanan, Valentin Zaitsev</i>	Energy efficiency of state-of-the-art grinding processes (ID: 43) <i>Matthias Hacksteiner, Harald Peherstorfer, Friedrich Bleicher</i>	Cryogenic Machining through the Spindle and Tool for Improved Machining Process Performance and Sustainability: Pt. II, Sustainability Performance Study (ID: 175) <i>Tao Lu, Ravikumar Kudaravalli, George Georgiou</i>
Virtual verification of 5-axis machine tools based on workpiece accuracy analysis: Software tool instead of expensive machining tests (ID: 114) <i>Yair Shneor, Vladimir Chapsky, Amir Shapiro</i>	A method for energetic comparison of 6-axis-industrial-robots and its further scope for resource efficient plant design (ID: 103) <i>Mathias Findeisen, Robert Schaffrath, Marcel Todtermuschke, Matthias Putz</i>	Energy efficiency and demand side management: A case study of a holistic energy concept in polymer processing (ID: 42) <i>Diana Khripko, Heiko Dunkelberg, Jens Hesselbach</i>	Influence of process parameters on residual stress in related distortions selective laser melting (ID: 113) <i>Lameck Mugwagwa, Dimiter Dimitrov, Stephen Matope, Igor Yadroitsev</i>

Trip to Baha'i and German Colony

17:00 – 19:00

September 26th 2017, Tuesday

08:00 – 08:30	Registration at conference site			
08:30 – 10:30	Keynote Speeches <i>Conference Room: tbd</i>			
08:30 – 09:00	Erman Tekkaya <i>Technische Universität Dortmund</i>	International Networking in Manufacturing Research and Education		
09:00 – 09:30	Matthias Putz <i>Technische Universität Chemnitz, Fraunhofer IWU</i>	Resilient production - the prerequisite for optimum resource exploitation in smart factories		
09:30 – 10:00	Fengzhou Fang <i>Tianjin University</i>	Towards Nanomanufacturing		
10:00 – 10:30	Holger Kohl <i>Technische Universität Berlin, Fraunhofer IPK</i>	Perspectives of International Engineering Education		
10:30 – 11:00	Coffee Break			
11:00 – 13:00	Paper and Student Sessions			
11:00 – 13:00	Paper Session 9: Assessment <i>Conference Room: tbd</i>	Paper Session 10: Life Cycle <i>Conference Room: tbd</i>	Student Session 2: Learnstruments and Learning Factories <i>Conference Room: tbd</i>	
13:00 – 14:00	Lunch			
14:00 – 15:00	Paper Sessions			
14:00 – 15:00	Paper Session 11: Maintenance, Repair and Overhaul <i>Conference Room: tbd</i>	Paper Session 12: Design <i>Conference Room: tbd</i>	Paper Session 13: Energy <i>Conference Room: tbd</i>	Paper Session 14: Entrepreneurial Initiative <i>Conference Room: tbd</i>
15:00 – 15:30	Coffee Break			
15:30 – 16:30	Paper Session			
15:30 – 16:30	Paper Session 15: Circular Economy <i>Conference Room: tbd</i>	Paper Session 16: Production System <i>Conference Room: tbd</i>	Paper Session 17: Energy <i>Conference Room: tbd</i>	Paper Session 18: Cutting <i>Conference Room: tbd</i>
16:30 – 17:00	Bus Transfer to Dinner			
17:00 – 22:30	Joint Dinner in Caesarea			
22:30 – 23:00	Bus Transfer to Haifa			

Paper and Student Sessions
September 26th, Tuesday, 11:00 – 13:00

Paper Session 9: Assessment	Paper Session 10: Life Cycle	Student Session 2: Learnstruments and Learning Factories
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (<i>University</i>)	Session Chair: Name (<i>University</i>)	Moderators: Names (<i>Institution</i>)
<p>A Multidimensional Assessment and Selection Methodology: Optimized Decision-making of Joining Technologies in Automobile Body Development (ID: 53)</p> <p><i>Saphir Choudry, Steffen Müller, Uwe Alber, Frank Riedel, Dirk Landgrebe</i></p>	<p>Reuse scenarios of tires textile fibers: an environmental evaluation (ID: 66)</p> <p><i>Daniele L Landi, Marco Marconi, Ivan Meo, Michele Germani</i></p>	
<p>CO2-based Assessment for Sustainable Production Planning in the Metal Processing Industry (ID: 17)</p> <p><i>Richard Müller, Marc Loster, Rebekka Volk, Frank Schultmann</i></p>	<p>Levers Influencing Sustainable Waste Recovery at Households Level: A Review (ID: 45)</p> <p><i>Bupe Getrude Mwanza, Charles Mbohwa, Arnesh Telukdarie</i></p>	
<p>Energy life-cycle assessment to improve energy efficiency as the basis of the environmental view of sustainability (ID: 62)</p> <p><i>Aldona Kluczek</i></p>	<p>The influence of waste collection systems on resource recovery. A review (ID: 47)</p> <p><i>Bupe Getrude Mwanza, Charles Mbohwa, Arnesh Telukdarie</i></p>	
<p>Life Cycle Rating – An approach to support the decision-making process of manufacturing systems (ID: 91)</p> <p><i>Andreas Müller, Martin Bornschlegl</i></p>	<p>Process integration concept for waste reduction among manufacturing planning, modularization and validation (ID: 110)</p> <p><i>Tetsuo Yamada, Shota Hasegawa, Yuki Kinoshita, Shuho Yamada, Masato Inoue, Christoph Rosebrock, Stefan Bracke</i></p>	
<p>Social Sustainability in technologically-supported product realisation process (ID: 173)</p> <p><i>Oladele O. Owodunni</i></p>	<p>Development of an efficiency-orientated batch reduction procedure for hazardous materials (ID: 29)</p> <p><i>Friedrich A. Halstenberg, Eleanor Chen, Guido Rumpel, Rainer Stark</i></p>	
<p>A method to estimate the total VOC emission of furniture products (ID: 33)</p> <p><i>Roberto Menghi, Silvia Ceccacci, Alessandra Papetti, Michele Germani</i></p>	<p>Feasibility Study and Development of a Sustainable Solar Thermal Power Plant through Utilization of Mine Wastelands (ID: 41)</p> <p><i>Wilson R. R. Nyemba, Prominent Munanga, Simon Chinguwa, Charles Mbohwa</i></p>	
<p>Lunch 13:00 – 14:00</p>		

Paper Sessions
September 26th, Tuesday, 14:00 – 15:00

Paper Session 11: Maintenance, Repair and Overhaul	Paper Session 12: Design	Paper Session 13: Energy	Paper Session 14: Entrepreneurial Initiative
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)
Structural Repair Using Cold Spray Technology for Enhanced Sustainability of High Value Assets (ID: 14) <i>Christian A Widener, Ozan C. Ozdemir, Michael Carter</i>	Topology and shape optimization with explicit geometric constraints using a spline-based representation and a fixed grid (ID: 156) <i>Yosef M. Yoely, Oded Amir, Iddo Hanniel</i>	High-pressure thermo-chemical recuperation – a way toward sustainable propulsion systems (ID: 146) <i>Leonid Tartakovsky</i>	Hacking Sustainability: the development of a new concept (ID: 31) <i>Paulo Savaget, Steve Evans</i>
Condition Based Monitoring of boiler parameters in a thermal power station (Case of anonymous company) (ID: 6) <i>Tawanda Mushiri, Tichaona Kennedy Mhazo, Charles Mbohwa</i>	The development of a cross-disciplinary innovation network in the field of smart materials – smart materials for smart production (ID: 163) <i>Welf-Guntram Drossel, Holger Kunze, Frithjof Meinel, André Bucht</i>	Hybrid simulation-based optimization of discrete parts manufacturing to increase energy efficiency and productivity (ID: 38) <i>Thomas Sobottka, Felix Kamhuber, Matthias Rössler</i>	A Local Learning Market to Explore Innovation Platforms (ID: 119) <i>Kirsten E. Van Fossen, Jeremie Morfin, Steve Evans</i>
New Age Advanced Smart Water Pipe Systems using Textile Reinforced Concrete (ID: 8) <i>Till Quadflieg, Yiska Goldfeld, Goezdem Dittel, Thomas Gries</i>	Fast and iterative prototyping for injection molding – a case study of rapidly prototyping (ID: 152) <i>Carlo Kriesi, Øystein Bjelland, Martin Steinert</i>	Control Unit for a Coreless Stator for use with SI Engine Stepping Valve (ID: 109) <i>Ishmael B Zibani, Rapelang Marumo, Joseph Chuma</i>	Exemplary Study of Low Cost Solid-Liquid Separation Prototype in Recovering Valuable Nutrients from Domestic Wastewater (ID: 188) <i>Samir Alnahhal, Samir Afifi; Günther Seliger</i>
Coffee Break 15:00 – 15:30			

Paper Sessions
September 26th, Tuesday, 15:30 – 16:30

Paper Session 15: Circular Economy	Paper Session 16: Production System	Paper Session 17: Energy	Paper Session 18: Cutting
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)
Defining an industrial symbiosis approach to favour closed-loop scenarios: the case of electronic appliances (ID: 72) <i>Marco Marconi, Claudio Favi, Fabio Gregori, Michele Germani</i>	Equivalence assessment method for the resource efficiency of equipment, technologies and production systems (ID: 107) <i>Alexander Pavlovitch Kuznetsov, Hans-Joachim Koriath, Tino Langer</i>	Methodology and model for predicting energy consumption in manufacturing at multiple scales (ID: 172) <i>Jan Reimann, Marko Friedemann, Ken Wenzel, Matthias Putz</i>	Potentials for the optimization of sawing processes using the example of band sawing machines (ID: 155) <i>Daniel Albrecht, Hans-Christian Moehring</i>
Unlocking Economic Value and Sustainable Furniture Manufacturing through Recycling and Reuse of Sawdust (ID: 39) <i>Wilson R. R. Nyemba, Allen Hondo, Luxmore Madiye, Charles Mbohwa</i>	A probabilistic approach to the Stochastic Job-Shop Scheduling problem (ID: 16) <i>Shraga Shoval, Mahmoud Efatmaneshnik</i>	Energy saving by manufacturing technology (ID: 124) <i>A. Erman Tekkaya</i>	Evaluation of the influence of different clamping chuck types on energy consumption, tool wear and surface qualities in milling operations (ID: 12) <i>Benjamin Thorenz, Hans Westermann, Markus Kafara, Marina Nützel, Rolf Steinhilper</i>
Strategies for the Recovery and Recycling of PSW: A Focus on Manufacturing Companies (ID: 46) <i>Bupe Getrude Mwanza, Charles Mbohwa, Arnesh Telukdarie</i>	Total Quality Management in Indian Manufacturing SMEs (ID: 165) <i>Sudhir Yadav, Saumyaranjan Sahoo</i>	A 'system' integration for energy recovery within data centres using combined cooling and power technology (ID: 73) <i>Yang Luo, John Andresen, Henry Clarke, Matthew Rajendra, Mercedes Maroto-Valer</i>	Diamond Wire Sawing of Solar Silicon Wafers: Sustainable Manufacturing Alternative to Loose Abrasive Slurry Sawing (ID: 164) <i>Shreyes Melkote, Arkadeep Kumar</i>
Bus Transfer to Dinner 16:30 – 17:00			
Joint Dinner 17:00 – 22:30			
Bus Transfer to Haifa 22:30 – 23:30			

September 27th, 2017 Wednesday

08:00 – 08:30	Registration at conference site			
08:30 – 10:00	Keynote Speeches <i>Conference Room: tbd</i>			
08:30 – 09:00	Yoram Koren <i>The University of Michigan</i>		Sustainable Reconfigurable Manufacturing Systems	
09:00 – 09:30	Paolo Bártolo <i>University of Manchester</i>		Additive Manufacturing technologies: present and future	
09:30 – 10:00	Welf-Guntram Drossel <i>Technische Universität Chemnitz, Fraunhofer IWU</i>		Development of a cross-disciplinary innovation network in the field of smart materials – smart materials for smart production	
10:00 – 11:00	Paper Sessions			
10:00 – 11:00	Paper Session 19: Process <i>Conference Room: tbd</i>	Paper Session 20: Nanotechnology <i>Conference Room: tbd</i>	Paper Session 21: Assessment <i>Conference Room: tbd</i>	Paper Session 22: New Technologies <i>Conference Room: tbd</i>
11:00 – 11:30	Coffee Break			
11:30 – 13:00	Paper and Workshop Sessions			
11:30 – 13:00	Paper Session 23: Industrie 4.0 <i>Conference Room: tbd</i>	Paper Session 24: Design <i>Conference Room: tbd</i>	Workshop Session 2: Additive Manufacturing <i>Conference Room: tbd</i>	
13:00 – 14:00	Lunch			
14:00 – 16:00	Paper Sessions			
14:00 – 16:00	Paper Session 25: Assessment <i>Conference Room: tbd</i>	Paper Session 26: Additive Manufacturing <i>Conference Room: tbd</i>	Paper Session 27: Design <i>Conference Room: tbd</i>	Paper Session 28: Strategy <i>Conference Room: tbd</i>
16:00 – 17:30	Technion Laboratory Visit and Coffee Break			
17:30	Farewell and end of the 15th Global Conference on Sustainable Manufacturing			

Paper Sessions

September 27th 2017, Wednesday, 10:00 – 11:00

Paper Session 19: Process	Paper Session 20: Nanotechnology	Paper Session 21: Assessment	Paper Session 22: New Technologies
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)
Experimental study on polishing of mold steel with micro abrasive slurry jet (ID: 36) <i>Chengyong Wang, Rongjuan Wang</i>	Carbon nanotube grease and sustainable manufacturing (ID: 162) <i>Haiping Hong, Greg Christensen, Christian Widener</i>	The regional and social impact of energy flexible factories (ID 71) <i>Eric Unterberger, Hans Ulrich Buhl, Lukas Häfner, Fabian Keller, Robert Keller, Steffi Ober, Caroline Paulick-Thiel, Gunther Reinhart, Michael Schöpf, Peter Simon</i>	High Precision Machining of Hybrid Layer Composites by Abrasive Waterjet Cutting (ID: 101) <i>Matthias Putz, Axel Rennau, Martin Dix</i>
Merge Technologies for Sustainable Hybrid Structures (ID: 187) <i>L. Kroll, M. Meyer, J. Stiller, J. Tröltzsch</i>	Research on vegetable-oil based nanofluid for minimum quantity lubrication (MQL) milling (ID: 133) <i>Yuan Songmei, Hou Xuebo</i>	Target-oriented analysis of resource consumptions in manufacturing process chains (ID: 184) <i>A. Demmer, N. Klingbeil, F. Klocke, M. Putz, T. Vollmer, R. Schmitt</i>	Ultrasonic-based Detection of Air-leakage for the Unclosed Components of Large Aircraft (ID: 34) <i>Wei Zhao, Pengfei Ma, Ning He, Liang Li, Yinfei Yang</i>
Wear reduction on cutting inserts by additional internal cooling of the cutting edge (ID: 11) <i>Friedrich Bleicher, Manuel Reiter</i>	A targeted functional value based Nanoclay/PA 12 composite material development for selective laser sintering process (ID: 78) <i>Sarang Pande, Sunil Tiwari, Santosh Bobade</i>	Specifying technology and rebound in the IPAT identity (ID: 99) <i>Christopher L. Magee, Tesselano Devezas</i>	
Coffee Break 11:00 – 11:30			

Paper and Workshop Sessions
September 27th, Wednesday, 11:30 – 13:00

Paper Session 23: Industrie 4.0	Paper Session 24: Design	Workshop Session 2: Additive Manufacturing
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (<i>University</i>)	Session Chair: Name (<i>University</i>)	Moderators: Names (<i>Institution</i>)
Moving from Industry 2.0 to Industry 4.0: A case Study from India on leapfrogging in Smart Manufacturing (ID: 143) <i>Anandi Iyer</i>	The design of portable automobile refrigerator powered by exhaust heat using thermoelectric (ID: 7) <i>Tawanda Mushiri, Christopher Musora, Simon Chinguwa</i>	
New production systems using industry 4.0 – Flexible production in the textile industry (ID: 3) <i>Daniel Buecher, Yves-Simon Gloy, Bernhard Schmenk, Thomas Gries</i>	Virtual prototyping technologies enabling resource-efficient and human-centered product development (ID: 77) <i>Christoph Allmacher, Manuel Dudczig, Philipp Klimant, Matthias Putz</i>	
Manufacturing in the fourth industrial revolution: A positive prospect in Sustainable manufacturing (ID: 159) <i>Núbia G P Carvalho, Omar C. Chaim, Edson Cazarini, Mateus Gerolamo</i>	Development of a Procedure for Analysis of Failure Chains in Complex Mechatronical Systems to Improve Sustainability (ID: 26) <i>Nadine Schlüter, Ovidiu Bielefeld, Hendrik Dransfeld</i>	
Scalable pattern discovery for process-fault monitoring in automated manufacturing (ID: 179) <i>Soner Emec, Jörg Krüger, I.S. Jawahir, Günther Seliger</i>	A Computer-aided Mold Design for Transfer Molding Process in Semiconductor Packaging Industry (ID: 185) <i>M. A. Karim, M. R. Alam, M. Rahman</i>	

Lunch
13:00 – 14:00

Paper Sessions
September 27th, Wednesday, 14:00 – 16:00

Paper Session 25: Assessment	Paper Session 26: Additive Manufacturing	Paper Session 27: Design	Paper Session 28: Strategy
<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>	<i>Conference Room: tbd</i>
Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)	Session Chair: Name (University)
Evaluating current smart production innovations in the machine building industry on sustainability aspects (ID: 169) <i>M.W. Waibel, G.A. Oosthuizen, D.W. du Toit</i>	Path planning for filling 3D printed parts utilizing Hilbert curves (ID: 140) <i>George Chryssolouris, Panos Stavropoulos</i>	The Sustainable Co-Design of Products and Production Systems (ID: 48) <i>Pasuree Lumsakul, Shahin Rahimifard, Leila Sheldrick</i>	A Study of Resource-efficient Technologies for Megacities of the Future to be Sustainable (ID: 15) <i>Wen Liu, Steve Evans</i>
Sustainability impact of digitization in logistics (ID: 171) <i>Yasanur Kayikci</i>	Cryogenic machining as a sustainable process to finish Additive Manufactured Ti6Al4V for biomedical applications (ID: 117) <i>Stefania Bruschi, Stefano Sartori, Andrea Ghiotti, Paolo Bariani</i>	The industrial symbiosis in the product development: an approach through the DFIS (ID: 54) <i>Gabriel C Mantese, Michael J Bianchi, Daniel Amaral</i>	Competences Mapping as a Tool to Increase Sustainability of Manufacturing Enterprises (ID: 28) <i>Giampaolo Campana, Francesco Melosi, Barbara Cimatti</i>
Methodological Framework for Life Cycle Sustainability Analysis of the Australian Food Industry (ID: 161) <i>Murilo Pagotto, Anthony Halog</i>	Laser Metal Deposition Technique: Sustainability and Environmental Impact (ID: 150) <i>Kamardeen O. Abdulrahman, Esther T. Akinlabi, Rasheedat M. Mahamood</i>	Sustainable Aspects Regarding a Multi-Criteria & Cross-Component Prediction of Property Change Potentials Within the Pre-Development Phase of Technical Product Systems (ID: 30) <i>Jerome Kaspar, Tobias Luedeke, Philip Meiser, Michael Vielhaber</i>	Implementation of lean production systems in small and medium-sized pharmaceutical enterprises (ID: 87) <i>Felix Sieckmann, Hien Nguyen Ngoc, René Helm, Holger Kohl</i>
The effect of the working environment on employee satisfaction and productivity: a case study in a clothing manufacturing factory (ID: 176) <i>N. Sukdeo, N. S. Madonesla</i>	Weight reduction of 3D-printed cylindrical and toroidal pressure vessels through shape modification (ID: 170) <i>Ehud Kroll</i>	Measuring Simplicity in Mechanical Design (ID: 138) <i>Reuven Katz, Niv Krayner, Kfir Cohen</i>	The Development of the Food Industry as a Condition for Improving Russia's National Security (ID: 127) <i>Lyudmila Serga, Vladimir V. Glinskiy, Natalia Samotoy, Michael Alekseev</i>
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Technion Laboratory Visit and Coffee Break

16:00 – 17:30

Farewell and end of the 15th Global Conference on Sustainable Manufacturing

17:30