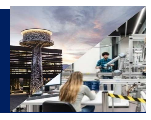
CLF 2026 - Programme (Preliminary)



CLF 2026 - 16th Conference on Learning Factories
Faculty of Engineering, Free University of Bolzano-Bozen, at NOI Techpark
5-7 May 2026 | Bolzano, Italy

Tuesday - 05.05.2026

Starttime	Endtime	Tuesday - 05.05.2026	Venue	Google maps link
09:00	11:30	**NOI Techpark and lab tours (all CLF delegates)**	Meeting point NOI Techpark Water Tower	https://maps.app.goo.gl/4fXJXiBFYiPYDHnx9
11:30	12:00	Arrival of IALF GA participants to Laimburg	Meeting point Foyer of Faculty of Engineering	https://maps.app.goo.gl/mx8F5coXGnafjXzt6
12:00	14:00	Laimburg tour and lunch/wine-tasting for IALF GA participants	Provincial Winery Laimburg, Laimburg, 39051 Vadena	https://maps.app.goo.gl/9D9r8QoFQ4wfT9pR7
14:00	17:30	**General Assembly IALF 2026 (only for registered IALF members)**	Provincial Winery Laimburg, Laimburg, 39051 Vadena	https://maps.app.goo.gl/9D9r8QoFQ4wfT9pR7
		In parallel free time for all other CLF delegates		
17:30	18:00	Bus for IALF GA participants from Laimburg to Bolzano /Faculty of Engineering		
18:00	22:00	**Welcome Reception (all CLF delegates)**	Foyer of Faculty of Engineering	https://maps.app.goo.gl/mx8F5coXGnafjXzt6

Wednesday - 06.05.2026

Starttime	Endtime	Wednesday - 06.05.2026	Venue	Google maps link
08:15	09:00	Registration	Foyer, Faculty of Engineering, Bolzano	https://maps.app.goo.gl/mx8F5coXGnafjXzt6
09:00	09:10	Opening and Welcome - Conference Chair Prof. Erwin Rauch and IALF President Prof. Sebastian Thiede	Aula Magna, Faculty of Engineering, Bolzano	
09:10	09:20	Welcome address from the Dean of the Faculty of Engineering Prof. Andrea Gasparella	Aula Magna, Faculty of Engineering, Bolzano	
09:20	09:50	**Keynote Speaker: Prof. Dr. Torbjørn Netland** Experienced Learning: Education Engineered for the Next Industrial Age	Aula Magna, Faculty of Engineering, Bolzano	
09:50	10:20	**Keynote Speaker: Vincent Mauroit, M.Sc.Eng., Executive MBA** NOI Techpark Innovation Ecosystem: Bridging Research and Industry in South Tyrol	Aula Magna, Faculty of Engineering, Bolzano	
10:20	10:50	**Keynote Speaker: Prof. Dr.-Ing. Florian Schupp** Developing a NextGen Digital Manufacturing Supplyverse	Aula Magna, Faculty of Engineering, Bolzano	
10:50	11:10	**Coffee break**		
11:10	12:00	**Industry Session - Panel Discussion** Skill Gap in Industry and the Role of Learning Factories	Aula Magna, Faculty of Engineering, Bolzano	

Parallel Session 1 — Ground Floor – Aula Magna
Theme: Enabling Technologies related to Learning Factories
Session Chair: Carlos Vazquez Hurtado, Tecnologico de Monterrey

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
12:00	12:20	1.1	101	Visual Intelligence for assisted Disassembly and Circular Economy	Rüdele, Kai; Eder, Heike; Ramsauer, Christian	**Christian Ramsauer, Graz University of Technology**
12:20	12:40	1.2	102	The Future of Quality Management: Educational Implications in the Age of AI	Eder, Heike; Rüdele, Kai; Ramsauer, Christian	**Heike Eder, Graz University of Technology**
12:40	13:00	1.3	104	Beyond One Size Fits All - A Checklist-Based Framework for Evaluating Inclusivity in Learning Factories	Savkare, Utkarsh; Kolla, Sri; Thiede, Sebastian	**Utkarsh Savkare, University of Twente**

Parallel Session 2 — 2nd floor - room B1.2.14
Theme: Learning Factory Operation – business models and cooperation
Session Chair: Bojan Jovanoski, Ss. Cyril and Methodius University

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
12:00	12:20	2.1	239	Role of Artificial Intelligence enabled Internet of Things(IoT) in learning factories: Opportunities and challenges in Rail Manufacturing	Malada, Dakalo; Mpofu, Khumbulani; Adenuga, Olukorede; Murena, Eriyeti	**Dakalo Malada, Tshwane university of technology**
12:20	12:40	2.2	242	Integrating Smart Learning Factories in Fire Truck Manufacturing: A Framework for Enhancing Skills and Industry 4.0 Adoption	Murena, Eriyeti; Nenzhelele, Tshifhiwa; Mpofu, Khumbulani	**Eriyeti Murena, Tshwane University of Technology**
12:40	13:00	2.3	185	Operational Decision Support In Learning Factories Through Autonomous Data Analytics And Large Language Models	Yang, Zhenkai; Ghafoorpoor Yazdi, Poorya; Thiede, Sebastian	**Zhenkai Yang, University of Twente**

Parallel Session 3 — 2nd floor - room B1.2.15
Theme: Engineering Education – Didactic processes related to Learning Factories
Session Chair: Louis Louw, Stellenbosch University

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
12:00	12:20	3.1	107	Assessing Value Creation in Learning Communities: Broading the Learning Factory Paradigm	van den Eijnde, Wilbert; Voet, Immy ; Nap, Jan	**Immy Voet, University of Applied Science NHL Stenden**
12:20	12:40	3.2	131	Enhancing Engineering Curricula with Industry 4.0 Technologies: A Case Study on Semi-Automated Assembly and MES/ERP Integration in a Learning Factory environment.	Alarcón López, Ángel Mario; Siller Lobo, Sergio; Ramírez-Cedillo, Erick; Bradley, Russel; Antony, Brian W.	**Erick Ramirez-Cedillo, Tecnologico de Monterrey**
12:40	13:00	3.3	193	Motivating ERP Learning through Gamification: A Didactic Concept for Next-Generation Learning Factories	Kühn, Alexander; Krüger, Prof. Dr. Andreas; Fleischmann, Prof. Dr. Carolin; Deistler, Prof. Dr. Nico	**Alexander Kühn, Technical University of Applied Sciences Rosenheim**

Parallel Session 4 — 2nd floor - room B1.2.16
Theme: Short Paper I
Session Chair: Marwa Ben Ali, Free University of Bolzano

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
12:00	12:20	4.1	109	Developing a Web-Based Digital Twin for an Agile Production Simulation System as a Learning Factory Platform	Bellalouna, Fahmi; Walter, Jürgen; Daub, Maximilian; Jabs, David; Vitkin, Philipp; Schneider, Maximilian	**Fahmi Bellalouna, University of Applied Sciences Karlsruhe**
12:20	12:40	4.2	110	Immersive Virtual Commissioning with Digital Twins: Implementation of a Robot-Based Automated Storage System in a Project-Based Course	Bellalouna, Fahmi; Reuter, Florian	**Fahmi Bellalouna, University of Applied Sciences Karlsruhe**
12:40	13:00	4.3	140	Designing Learning Factories For Vocational And Higher Education: Fostering Interdisciplinary Learning Groups With Authentic Business Processes	Leidl, Sophie; Girkes, Florian; Block, Johannes; Bergmann, Jean Pierre	**Sophie Leidl, Technische Universität Ilmenau**

Starttime	Endtime	
13:00	14:00	**Lunch**

Parallel Session 5 — Ground Floor – Aula Magna
Theme: Enabling Technologies related to Learning Factories
Session Chair: Fazel Ansari, TU Wien and Fraunhofer Austria

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
14:00	14:20	5.1	105	Leveraging Virtual Reality to Enhance Industrial Cobot Programming	Groenwald, Tian; Steed, Clint Alex; Clarke, James	**Clint Alex Steed, Stellenbosch Unviersity**
14:20	14:40	5.2	111	Data-Driven Learning Factories: Integrating Tulip MES for Smart Manufacturing Education	Andrade Flores, Leonardo; Peña Zuñiga, Gabriela Lizeth; Ortiz Maldonado, Cristopher; Ramírez-Cedillo, Erick; Ortiz Espinosa, Alexandro; Bradley, Russel; Anthony, Brian W.	**Erick Ramirez-Cedillo, Tecnologico de Monterrey**
14:40	15:00	5.3	188	Dynamic Ambient Sensor Data Mapping System with LoRa-based Wireless Sensor Network in Learning Factories	Xiao, Leicai; Ghafoorpoor Yazdi, Poorya; Thiede, Sebastian	**Leicai Xiao, Universiteit Twente**
15:00	15:20	5.4	114	FrEDie: An AI- and AR-Powered Virtual Assistant to Reduce Downtime and Foster Competence Development in Learning Factories	Ortiz-Espinoza, Alexandro Antonio; Andrade Flores, Leonardo; Herrera García, Daniela; Tovar Mendoza, Hector; Ramírez-Cedillo, Erick; Cantú Cavada, César; Ponce-Cruz, Pedro	**Alexandro Antonio Ortiz-Espinoza, Tecnologico de Monterrey**

Parallel Session 6 — 2nd floor - room B1.2.14
Theme: Next Gen Agile Learning Factories for Navigating Uncertainties
Session Chair: Patrick Dallasega, Free University of Bolzano

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
14:00	14:20	6.1	133	Developing Next Gen Learning Factories For Industrial Requirements And Environment	Dommermuth, Maximilian; Guedria, Mohamed; Schmidt, Jörg	**Maximilian Dommermuth, Bosch Rexroth AG**
14:20	14:40	6.2	121	An Explainable AI Training Module for Teaching Condition Monitoring in Next-Generation Learning Factories	Zhang, Hao; Wang, Xianfeng; Ehrmann, Christopher; Zhang, Weimin; Jia, Ziwei; Xue, Feng; Shen, Mulin	**Hao Zhang, Tongji University**
14:40	15:00	6.3	182	Applying the 10P Model Cycle for Success to the Green Hydroponics Learning Factory: A Case Study	Ahmad, Rafiq; Dutta, Souravik	**Rafiq Ahmad, University of Alberta**
15:00	15:20	6.4	164	Application of Chaos Engineering in Learning Factories to Strengthen Resilience	Meldt, Leonie; Doan, Anh Minh Augustino; Barth, Jonas; Pohl, Hans Niklas; Jung, Daniele; Schleich, Benjamin; Weigold, Matthias; Metternich, Joachim	**Leonie Meldt, Techincal University of Darmstadt**

Parallel Session 7 — 2nd floor - room B1.2.15
Theme: Engineering Education – Didactic processes related to Learning Factories
Session Chair: Matthias Wolf, TU GrazTU Graz

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
14:00	14:20	7.1	116	Bridging the Haptic-Digital Gap: A Simulation-Ready Learning Factory Approach	Morlock, Prof. Dr.-Ing. Friedrich; Grzywaczyk M.Sc., Julian	**Julian Grzywaczyk, Hochschule Ruhr West**
14:20	14:40	7.2	179	A Didactic GUI Framework for Teaching Robot-Based Sequencing Logic in Learning Factories	Geiser, Alexander; Dorian, Leon; Engels, Maurice; Benfer, Martin; Lanza, Gisela	**Maurice Engels, KIT**
14:40	15:00	7.3	113	Improving Vocational Training Through Competence-Oriented Selection Of Learning Formats	Geis, Michael; Barth, Jonas; Metternich, Joachim	**Michael Geis, Technische Universität Darmstadt**
15:00	15:20	7.4	186	A Competence-Oriented Framework for Virtual Induction and Automated Assessment in Engineering Learning Factories	Aderoba, Olugbenga Adegbemisola; Swanepoel, Jan Adriaan; Nenzhelele, Tshifhiwa	**Olugbenga Adegbemisola Aderoba, Tshwane University of Technology**

Parallel Session 8 — 2nd floor - room B1.2.16
Theme: Short Paper II
Session Chair: Matteo De Marchi, Free University of Bolzano

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
14:00	14:20	8.1	161	Implementation of Edge to Cloud Manufacturing Execution Systems in the Context of Connected Learning Factories	Wengle, Markus; Dietmüller, Thomas; Hamzic, Edvin; Hörner, Philip; Schließmann, Alexander	**Thomas Dietmüller, DHBW Ravensburg**
14:20	14:40	8.2	171	Engineering Learning Factory - Transforming Engineering Education through an Interdisciplinary Experiental Learning Environment	Kerschbaumer, Walburga; Rauch, Erwin; Matt, Dominik T.	**Walburga Kerschbaumer, Free University of Bolzano-Bozen**
14:40	15:00	8.3	183	Who Doesn't Make a Learning Factory for Sustainability? The Domain Differences That Impeed Interdisciplinarity.	Bjørnsten, Thomas Bøgelund; Christiansen, Lasse; Cortsen, Jens; Liu, Cong; Nybye, Nicolai Nørtoft; Poulsen, Christian	**Lasse Christiansen, University College of Northern Denmark**
15:00	15:20	8.4	187	An IoT-Enabled Learning Management System Framework for Learning Factories	Ituarte, Ione; Otaño, Aitor	**Ione Ituarte, TKNIKA**

Starttime	Endtime	
15:20	15:40	**Coffee break**

Parallel Session 9 — Ground Floor – Aula Magna
Theme: Enabling Technologies related to Learning Factories
Session Chair: Bernd Kuhlenkötter, Ruhr University Bochum

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	9.1	112	Teaching Industry 4.0: An Open-Source Framework for Cooperative Robotics in the Learning Factory	Bento, Antonio Carlos; Vazquez-Hurtado, Carlos; Rodriguez-Padilla, Consuelo; Ocampo-Silva, Ixchel; Cabrera-López, Manuel Gabriel; Medina-Carvajal, Jorge Eduardo; Arguelles-Ramirez, Hiram; González-Domínguez, Carlos Eric	**Carlos Vazquez-Hurtado, Instituto Tecnológico y de Estudios Superiores de Monterrey**
16:00	16:20	9.2	118	Comparison of Virtual Reality and Video Instruction Effectiveness for Manufacturing Assembly Training	Clarke, James; Steed, Clint; Greonwald, Tian	**James Clarke, Stellenbosch Unviersity**
16:20	16:40	9.3	124	From Novice To Expert: Establishing an Adaptive Digital Assistant For Learning Metrology In A Learning Factory Setting	Lang, Lukas; Schwinn, Aileen; Köhler, Christian	**Christian Köhler, Saarland University of Applied Sciences (htw saar)**
16:40	17:00	9.4	127	Multimodal Retrieval-Augmented-Generation for Deviation Management with Video Preprocessing	Wang, Yuxi; Chen, Zhaoguo; Cicek, Evrim; Seubert, Niko; Metternich, Joachim	**Evrim Cicek, Technical University of Darmstadt**
17:00	17:20	9.5	128	Exploring Knowledge Governance in Mixed Reality (MR) Engineering Education in Higher Education Institutions (HEIs)	Zammit, Joseph; Francalanza, Emmanuel; Li, Chang-Tsun; Mckenzie, Sophie; Anwar, Adnan; Teh, Je Sen	**Emmanuel Francalanza, University of Malta**

Parallel Session 10 — 2nd floor - room B1.2.14
Theme: Learning Factory Operation – business models and cooperation
Session Chair: Mia Mangaroo-Pillay, Stellenbosch University

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	10.1	263	A Systematic Analysis of Learning Factories at Universities of Applied Sciences in North Rhine-Westphalia, Germany: Bridging Education, Research, and Industrial Practice	Feng, Li	**Li Feng, Hochschule Bielefeld**
16:00	16:20	10.2	272	Smart Production Lab: Transforming a Lean Learning Factory into a Digital, Circular and Robotic Production Laboratory	Bernhard, Olivia; Streibel, Lasse; Rammo, Jan-Philipp; Geng, Paul; Stang, Julian; Wegmann, Marc; Lindholm, Niklas; Klages, Björn; Wagner, Sarah; Colsman, Caroline; Bauer, Johannes; Sippl, Fabian; Gärtner, Quirin; Kröger, Sebastian; Brunnenkannt, Finn-Augustin; Göbel, Laura; Eichmann, Moritz; Stöver, Jannik; Reuter, Christina	**Caroline Colsman, Technical University of Munich**
16:20	16:40	10.3	292	Integrating Learning Factory Principles into Engineering Lab Redesign: A Guideline-Driven Case Study	Dehbozorgi, Mohammad Hossein; Rossi, Monica; Sullivan, Brendan Patrick; Terzi, Sergio	**Mohammad Hossein Dehbozorgi, Politecnico di Milano**
16:40	17:00	10.4	184	What Should They Learn? Stakeholder Engagement in Learning Factory Development	Bennyson, Rene; Bjørnsten, Thomas Bøgelund; Christiansen, Lasse; Højen, Karina Finding; Lindkvist, Rickard; Mikkelsen, Lars Christian Lindegaard; Poulsen, Christian	**Lasse Christiansen, University College of Northern Denmark**
17:00	17:20	10.5	190	Technical Skills Development through Hands-On Collaborative Assembly and Installation of Cobots in Learning Factories	Aderoba, Olugbenga Adegbemisola; Swanepoel, Jan Adriaan; Nenzhelele, Tshifhiwa	**Olugbenga Adegbemisola Aderoba, Tshwane University of Technology**

Parallel Session 11 — 2nd floor - room B1.2.15
Theme: Engineering Education – Didactic processes related to Learning Factories
Session Chair: Matthias Wolf, TU Graz

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	11.1	141	Conceptualizing Shopfloor Competencies for the Circular Economy: A Competence-requirement Mapping for Learning Factories	Meiertöns, Mark; Schmidt, Matthias	**Mark Meiertöns, Leibniz University Hannover**
16:00	16:20	11.2	144	Gamification in the Learning Factory: Development and Validation of an Escape Room on Sustainability for Engineering Education	Wohlgemuth, Carsten; Keller, Tom; Permin, Eike; Potthoff, Leonie	**Carsten Wohlgemuth, TH Köln**
16:20	16:40	11.3	145	An Agile Learning Factory for a Modular Vertical Farm Design	Figarola, Jose Miguel; Vazquez, Carlos; Ahmad, Rafiq	**Jose Miguel Figarola, University of Alberta**
16:40	17:00	11.4	148	LoopingBricks: Serious Gaming in Learning Factories to Align Business Models for Circular Economy	Dormeier, Christopher; Ghazanfarpour, Zahra; Süß, Sandro; Mennenga, Mark	**Mark Mennenga, Technische Universität Braunschweig**
17:00	17:20	11.5	136	Design And Training Of Robust Business Processes Using Serious Games	Lange, Annika; Knothe, Thomas	**Annika Lange, Fraunhofer IPK**

Parallel Session 12 — 2nd floor - room B1.2.16
Theme: Short Paper III
Session Chair: Sergio Salimbeni, USAL - Universidad del Salvador

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	12.1	189	Design and Implementation of the Reconfigurable Cobot Workstation into the Learning Factory Environment	Mladineo, Marko; Veza, Ivica; Gjeldum, Nikola; Crnjac Zizic, Marina; Aljinovic Mestrovic, Amanda; Bilic, Bozenko; Basic, Andrej	**Marko Mladineo, FESB, University of Split**
16:00	16:20	12.2	191	Designing An Industrial Metaverse-Enabled Net-Zero Smart Learning Factory	John, Jessel; Cenk, Gökhan; Engel, Tobias	**Gökhan Cenk, University of Applied Sciences Neu-Ulm**
16:20	16:40	12.3	195	Learning Factory from the First Year of Engineering: Experiences in a University of Applied Sciences	Pacheco, Fernando S.; Hernandez, Ernesto	**Fernando S. Pacheco, Häme University of Applied Sciences**
16:40	17:00	12.4	215	AI for Problem Solving in Quality Management: An Experiential Learning Approach in the i-FAB Learning Factory	Marazzini, Stefano; Pozzi, Rossella; Rossi, Tommaso; Saporiti, Nicolò; Strozzi, Fernanda; Pirola, Fabiana; Rossi, Monica	**Stefano Marazzini, Carlo Cattaneo - LIUC University**

Starttime	Endtime		
17:30	17:30	**Close of Day 2**	
19:00	22:00	**Conference Dinner: Maretsch Castle, Bolzano**	https://maps.app.goo.gl/VSroSGMjT5LiN6rD6

Thursday - 07.05.2026

Starttime	Endtime	
08:00	08:30	**Late Registration**

Parallel Session 13 — Ground Floor – Aula Magna
Theme: Enabling Technologies related to Learning Factories
Session Chair: Jochen Deuse, University of Technology Sydney

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
08:30	08:50	13.1	130	Designing for Flexibility: Training Students in Low-Code Interfaces and Smart Manufacturing Integration	De la Cruz Rangel, María Fernanda; Salazar González, Adrián Oswaldo; Peña Zuñiga, Gabriela Lizeth; Reyna Vargas, Diego Fernando; Villareal De la Garza, Alfonso; Ramírez-Cedillo, Erick	**Erick Ramirez-Cedillo, Tecnologico de Monterrey**
08:50	09:10	13.2	132	Agentic LLM-System for Gamified Adaptive Competence Development in Production	Cicek, Evrim; Henschel, Simon; Na, Daeyeop; Park, Yeseul; Metternich, Joachim	**Evrim Cicek, Technical University of Darmstadt, Institute PTW**
09:10	09:30	13.3	135	Digital Twin-Based Energy Assessment in a Human-Robot Collaborative Workstation for Experiential Learning	Nezzi, Chiara; Bonello, Amberlynn; Emer, Asja; Francalanza, Emmanuel; Rauch, Erwin	**Chiara Nezzi, Free University of Bolzano-Bozen**
09:30	09:50	13.4	142	Leveraging Building Information Modeling for Sustainability: A Use-Stage Evaluation Approach for Learning Factories	Emer, Asja; Revolti, Andrea; Rauch, Erwin; Dallasega, Patrick; Matt, Dominik	**Asja Emer, Free University of Bolzano-Bozen**
09:50	10:10	13.5	146	Design and Simulation-Based Optimization of a Virtual Learning Factory for Structural Steel Prefabrication	Valenzuela Robles, Denisse; Dutta, Souravik; Ahmad, Rafiq	**Rafiq Ahmad, University of Alberta**
10:10	10:30	13.6	200	5G Applications in Manufacturing: Systematic Literature Review and Case Applications in Learning Factories	de Oliveira Marinho, Francielly; Iqbal, Laiba; Rodrigues Santos, Gabriel; de A. F. Romeral, Pedro Antonio; Tavares de Sousa Zomer, Thayla; Schützer, Klaus; Zancul, Eduardo	**Gabriel Rodrigues Santos, University of São Paulo**

Parallel Session 14 — 2nd floor - room B1.2.14
Theme: Enabling Technologies related to Learning Factories
Session Chair: Klaus Schützer, University of Sao Paolo

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
08:30	08:50	14.1	274	A Neuroadaptive Human–AI Co-Learning Model for Navigating Operational Uncertainties	Abela, Edward; Aruvali, Tanel; Francalanza, Emmanuel	**Emmanuel Francalanza, University of Malta**
08:50	09:10	14.2	108	How Can Learning Factories Advance The Green Transition And Build Regional Competences In The Swedish Arctic?	Elnourani, Mohamed; Rönnbäck, Anna Öhrwall; Vahlne, Tobias; Johansson, Petter	**Mohamed Elnourani, Luleå University of Technology**
09:10	09:30	14.3	134	Tackle Industrial Skill Shortage With New Learning Factory Operation And Collaboration Models	Dommermuth, Maximilian; Schmitt, Jörg; Schild, Philipp	**Jörg Schmitt, Bosch Rexroth AG**
09:30	09:50	14.4	156	Disassembly Use Case for Teaching, Training, and Method Validation in Circular Production Learning Factories	Streibel, Lasse; Brunnenkant, Finn-Augustin; Eichmann, Moritz; Lindholm, Niklas; Jordan, Patrick; Bernhard, Olivia; Wegmann, Marc; Reuter, Christina	**Finn-Augustin Brunnenkant, Technical University of Munich**
09:50	10:10	14.5	196	From Pilot Projects in the Learning Factory to Industry Toolbox: Advancing the Digital Transformation of the Automotive Industry	Faller, Clemens; Weissert, Britta	**Clemens Faller, Bochum UAS**
10:10	10:30	14.6	197	Robotic Forming in Learning Factory: A Didactic Approach Combining Design, Simulation, and Experiment	Zhang, Yanrong; Li, Yirou; Deng, Shuyue; Tu, Qiansi; Mo, Jiao; Zhang, Weimin; Möllensiep, Dennis; Prinz, Christopher; Kuhlenkötter, Bernd; Min, Junying	**Yanrong Zhang, Tongji University**

Parallel Session 15 — 2nd floor - room B1.2.15
Theme: Engineering Education – Didactic processes related to Learning Factories
Session Chair: Erwin Rauch, Free University of Bolzano, Italy

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
08:30	08:50	15.1	150	The WI-Brewing-Cellar. A craft-based Creative BA for developing research competencies	Teichmann, Malte; Ritterbusch, Georg; Kurtz, Gila; Lettkemann, Virginie; Schummel, Philip; Gronau, Norbert	**Virginie Lettkemann, University of Potsdam**
08:50	09:10	15.2	151	Gamified Learning Factories: Bridging Physical and Digital Simulation for Teaching Industry 5.0 with a Focus on Occupational Safety	Hercík, Radim; Spitzhirn, Michael; Laciok, Vendula; Zemánek, Jan	**Radim Hercik, VSB – Technical University of Ostrava**
09:10	09:30	15.3	153	Human-Centric Teaching & Learning Factories: Inclusive Design Strategies for Vulnerable Learners	Papacharalampopoulos, Alexios; Karagianni, Olga Maria; Van Landuyt, Davy; Stavropoulos, Panagiotis	**Panagiotis Stavropoulos, Laboratory for Manufacturing Systems and Automation**
09:30	09:50	15.4	163	Assisting a Manufacturing SME in Advancing its Industry 4.0 Maturity Level: A Learning Factory Case in Kit Assembly	Montero Navarro, Ana Luisa; Cisneros Gonzalez, Jessica Janeth; Sandoval Padilla, Saul; Galaviz Jimenez, Gerardo; Rios Robledo, Daniel; Roman Flores, Armando	**Ana Luisa Montero Navarro, Tecnológico de Monterrrey**
09:50	10:10	15.5	165	Training Factory Transformation: Achieving Multi-Level Development based on a Maturity Guide	Groot Roessink, Sam; Massa, Janneke; Lutters, Eric	**Sam Groot Roessink, University of Twente**
10:10	10:30	15.6	166	Designing Learning Factory Education: A Methodology for Deliberate Didactic Design	Massa, Janneke; Lutters, Eric	**Janneke Massa, University of Twente**

Parallel Session 16 — 2nd floor - room B1.2.16
Theme: Short Paper IV
Session Chair: Walburga Kerschbaumer, Free University of Bolzano

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
08:30	08:50	16.1	226	Die Lernfabrik – Learning Factory for Sustainable, Circular, and Digital Production	Süß, Sandro; Wojahn, Olaf; Ventura Silva, Gabriela; Geffers, Gordon; Kohn, Sophia; Effner, Benjamin; Hansemann, Maik; Mennenga, Mark; Herrmann, Christoph	**Sandro Süß, Technische Universität Braunschweig**
08:50	09:10	16.2	236	Design Implementations in a Learning Factory Focused on IoT and Industry 4.0 Technologies	Centea, Dan; Wanyama, Tom; Mehrtash, Moein; Singh, Ishwar	**Ishwar Singh, McMaster University**
09:10	09:30	16.3	241	Using Spatial Computing To Program a Programmable Logic Controller For Didactic Approaches In a Learning Factory Context	Cortsen, Jens	**Jens Cortsen, Business Academy Copenhagen**
09:30	09:50	16.4	244	Learning Factories as a Catalyst for Innovation in Southern African Engineering Education.	Ndiyamba, David; Murena, Eriyeti; Kasukusa, Stephen; Mafuratidze, Francis; Nemzhele, Tshifhiwa; Mpofu, Khumbulani; Mapindu, Innocent	**Eriyeti Murena, Tshwane University of Technology**

Starttime	Endtime	
10:30	10:50	**Coffee break**

Parallel Session 17 — Ground Floor – Aula Magna
Theme: Enabling Technologies related to Learning Factories
Chair: Christian Köhler, HTW Saar

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
10:50	11:10	17.1	147	Link Data to Products: Lessons Learned from Digital Product Passport Application in a Learning Factory Environment	Wolf, Matthias; Kirschner, Christoph; Langer, Matteo; Foivos, Psaromatis; Ragu, Athinarayanan; David, Cochran; Christian, Ramsauer	**Matthias Wolf, Graz University of Technology**
11:10	11:30	17.2	154	Mixed-Reality Framework For Learning Factories: A Modular And Multi-Platform Approach	Effner, Benjamin; Ventura Silva, Gabriela; Lindner, Marija; Herrmann, Christoph	**Benjamin Effner, Technische Universität Braunschweig**
11:30	11:50	17.3	155	Increasing Efficiency In MTM Training: A Comparison Of VR-Based And Manual Analysis	Benter, Martin; Neumann, Maria; Kuhlang, Peter	**Peter Kuhlang, MTM ASSOCIATION e. V.**
11:50	12:10	17.4	175	Augmented Reality in Intralogistics: Impact of System Design on Users' Learning Curves	Stern, Hendrik; Kreutz, Markus; Quandt, Moritz; Freitag, Michael	**Hendrik Stern, BIBA - Bremer Institut für Produktion und Logistik**
12:10	12:30	17.5	177	Method For Continuously Updating Holistic Digital Factory Models In Learning Factory Operation	Raber, Annemarie; Bermpohl, Fabian; Böck, Julian; Chaudhari, Kunal; Gonnermann, Clemens; Bednarz, Martin; Daub, Rüdiger	**Annemarie Raber, Fraunhofer-Institut für Gießerei-, Composite- und Verarbeitungstechnik IGCV**

Parallel Session 18 — 2nd floor - room B1.2.14
Theme: Enabling Technologies related to Learning Factories
Chair: Christian Ramsauer, TU Graz

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
10:50	11:10	18.1	214	Startups Development in Learning Factories: A Case Study within a University Innovation Ecosystem	Esposito Vieira, Renan; Tavares de Sousa Zomer, Thayla ; Zancul, Eduardo	**Eduardo Zancul, University of São Paulo**
11:10	11:30	18.2	255	A Replicable Framework for International Collaborative Learning Factories: Competency Development in the FrED Factory MIT–Tec Model	Bradley, Russel; Nájera Aponte, Naomi; Ramírez-Cedillo, Erick; Ortiz-Espinoza, Alexandro; Cantu-Cavada, Cesar; Ponce, Pedro; Pacheco, Jose J.; Vargas-Martinez, Adriana; Anthony, Brian W.	**Russel Bradley, Massachusetts Institute of Technology**
11:30	11:50	18.3	205	From Signals To Decisions: A Pedagogical Pipeline For Tool-Wear Prediction Using Few-Shot Learning	Beh, Qian Jun; Pugalenthi, Karkulali; Zhang, Leyuan; Nam, Doan Ngoc Chi; Siew, Tan Puay; Lian, Ong Chun	**Qian Jun Beh, Agency for Science, Technology and Research (A*STAR)**
11:50	12:10	18.4	218	Integrating Virtual Reality in Robotics Training: A Project-Based Learning Approach	Khan, Muhammad Afnan; Castaneda, Jennifer Cardenas; Roman, Armando; Ahmad, Rafiq	**Muhammad Afnan Khan, University of Alberta**
12:10	12:30	18.5	237	Bridging Real and Simulated Production Data for Eco-Design: Experiencing the Impact of Factory Settings on LCA Data Quality	Graessler, Iris; Pottebaum, Jens; Rarbach, Sven; Vollenkemper, Felix	**Jens Pottebaum, Paderborn University**

Parallel Session 19 — 2nd floor - room B1.2.15
Theme: Enabling Technologies related to Learning Factories
Chair: Joachim Metternich, Darmstadt University

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
10:50	11:10	19.1	169	Experience Platform to Enhance AI Competences in SMEs	Behrendt, Fabian; Timm, Patrick; Menschulin, Daniel; Kaltschmidt, Nadine	**Nadine Kaltschmidt, University of Applied Sciences Magdeburg-Stendal**
11:10	11:30	19.2	170	Smart Factory Planning - A Learning Concept	Adam, Martin; Spitzhirn, Michael; Kammermeier, Matthias	**Martin Adam, University of applied science Kufstein / Tyrol**
11:30	11:50	19.3	172	Between Feasibility And Responsibility:Technological And Ethical Limits Of Innovation	Köhler, Christian; Schwinn, Aileen; Lang, Lukas	**Christian Köhler, Saarland University of Applied Sciences (htw saar)**
11:50	12:10	19.4	173	Developing AI Competences In Quality Control: A Modular And Target Group-Specific Qualification Concept In Learning Factories	Apfeld, Alexander; Kröll, Martin; Burova-Keßler, Kristina; Prinz, Christopher; Kuhlenkötter, Bernd	**Alexander Apfeld, Ruhr-Universität Bochum**
12:10	12:30	19.5	176	Integrating Six Sigma And Data Science In Learning Factories: Developing Problem-Solving Competencies Through Experiential Education	Deuse, Jochen; Schulte, Lukas; Stemann, Dietmar	**Jochen Deuse, TU Dortmund University**

Parallel Session 20 — 2nd floor - room B1.2.16
Theme: Short Paper V
Session Chair: Luca Gualtieri, Free University of Bolzano

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
10:50	11:10	20.1	275	Next-Generation Learning Factory Center: Concepts and Infrastructure	Baisukhan, Adirek; Nakkiew, Wasawat	**Adirek Baisukhan, Chiang Mai University**
11:10	11:30	20.2	251	Enriching a Collaborative Assembly Cell With Visual Perception in a Learning Factory Environment	Nacsa, János; Kemény, Zsolt; Godó, Gábor; Kovács, Gábor	**Zsolt Kemény, HUN-REN SZTAKI Institute for Computer Science and Control**
11:30	11:50	20.3	261	Integration of Digital Twins and Data Analytics in the BO Smart Factory Using XR	Kröger, Marcus; Kneissler, Andreas; Schilberg, Daniel	**Marcus Kröger, Bochum University of Applied Sciences**
11:50	12:10	20.4	143	Student-Driven Innovation Loops: Integration of Next-Gen Technologies into an Existing Lean Learning Factory	Potthoff, Leonie; Wenderoth, Niklas; Wohlgemuth, Carsten	**Leonie Potthoff, University of Applied Sciences and Arts Dortmund**
12:10	12:30	20.5	248	Competency and Cognitive Engineering in Learning Factories: A Quasi-Experimental Evaluation of Tinkercad Simulator for Digital Electronics and Embedded Manufacturing Systems	Oyesola, Moses Oluwafemi; Nenzhelele, Gift	**Moses Oluwafemi Oyesola, Tshwane University of Technology**

Starttime	Endtime	
13:00	14:00	**Lunch**

Parallel Session 21 — Ground Floor – Aula Magna
Theme: Enabling Technologies related to Learning Factories
Session Chair: Sotiris Makris, University of Patras

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
13:40	14:00	21.1	203	Competency-Oriented Requirements for Learning Factories in Circular Battery Cell Production	Ventura Silva, Gabriela; Kohn, Sophia; Süß, Sandro; Effner, Benjamin; Herrmann, Christoph	**Gabriela Ventura Silva, Technische Universität Braunschweig**
14:00	14:20	21.2	204	From Reality Capture to Industrial Metaverse: First Steps Towards a Self-Learning Manufacturing System	Romero Escobedo, Libia; Fichtl, Fabian; Bär, Thomas; Pfeifer, Denis; Schemminger, Florentin; Lüdemann-Ravit, Bernd; Zürn, Julian; Thalappully, Rashik	**Fabian Fichtl, Institute for Production and Informatics (IPI) Sonthofen, University of Applied Sciences Kempten**
14:20	14:40	21.3	220	Integrating AI Assistance and Human-Machine Collaboration in Learning Factories for Industry 5.0	Vazquez Hurtado, Carlos; Alberto Romero Wells, Ivan; Malagamba Montejo, Gilberto; Fregoso Jimenez, Gerardo; Santiago Benvenuto Valerdi, Luis	**Carlos Vazquez Hurtado, Monterrey Institute of Technology and Higher Education campus Monterrey**
14:40	15:00	21.4	222	From Raw Material to Finished Product: Leveraging Learning Factories for End-to-End Product Traceability	Uribe-Hernandez, Hiram; Vazquez-Hurtado, Carlos; Monsivais-Mancilla, Mario; Mijares-Menchaca, Samuel; Lopez-Suarez, Oscar; Tejeda-Alejandre, Raquel	**Raquel Tejeda-Alejandre, Tecnologico de Monterrey**
15:00	15:20	21.5	199	From MES Core to MES Minimal: Lessons from Developing and Piloting Open-Source MES Platforms in a Learning Factory	Barasa, Paul Wanyama; Wanyama, Tom	**Tom Wanyama, McMaster University**

Parallel Session 22 — 2nd floor - room B1.2.14
Theme: Enabling Technologies related to Learning Factories
Session Chair: Zsolt Kemény, HUN-REN SZTAKI

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
13:40	14:00	22.1	269	Seeing Less, Learning More: Compressed Sensing as a Framework for Data-Efficient Vision in Learning Factories	Cardenas Benitez, Braulio; Vazquez-Hurtado, Carlos	**Braulio Cardenas Benitez, Tecnologico de Monterrey**
14:00	14:20	22.2	271	NeuroSymbolic AI for Core Assessment of Domestic Appliances in a Learning Factory	Daniele, Fabio; Conti, Lorenzo; Pedrazzoli, Paolo; Gambardella, Luca Maria	**Fabio Daniele, SUPSI**
14:20	14:40	22.3	262	Learning Factories: Design of an Embedded Intelligent Agent for Climate Monitoring Systems	De´Sterna-Primerano, Fabrizio; Medina-Brito, Lucas; Nicolet, Santiago; Salimbeni, Sergio	**Sergio Salimbeni, USAL - Universidad del Salvador**
14:40	15:00	22.4	289	Agentic AI for Humanistic Learning in Engineering Education: A Conceptual Framework for Learning Factory Environments	Bitsch, Günter	**Günter Bitsch, Reutlingen University**
15:00	15:20	22.5	290	Empowering Engineering Education with Augmented Reality: An Assembly Task Case Study	Iob, Carlo; Lanzone, Marco; Gualtieri, Luca; Dallasega, Patrick	**Carlo Iob, Free University of Bozen/Bolzano**

Parallel Session 23 — 2nd floor - room B1.2.15
Theme: Engineering Education – Didactic processes related to Learning Factories
Session Chair: Eric Lutters, University of Twente

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
13:40	14:00	23.1	227	Implementing PCF Calculation in a Learning Factory Based on Synthetic ERP Data	Seyfried, Stefan; Ozen, Oskay; Weigold, Matthias	**Stefan Seyfried, Technical University of Darmstadt**
14:00	14:20	23.2	228	Blended pedagogies in learning factories: Advancing practical competencies in the Automotive Industry	Murena, Eriyeti; Nenzhelele, Tshifhiwa; Mpofu, Khumbulani; Malada, Dakalo	**Eriyeti Murena, Tshwane University of Technology**
14:20	14:40	23.3	229	Digital Twin–Driven Laser Engraving Learning Factory	Hareesh, Prakruthi; Tangaraj, Arunkarthik; C Jayaram, Robin	**Prakruthi Hareesh, BITS Pilani, WILP**
14:40	15:00	23.4	231	Inclusivity Assessment in Manufacturing: Design and Evaluation of an LLM-Based Chatbot Agent in a Learning Factory Industry 4.0	Karbasi, Atieh; Ruthofer, Isabella; Ansari, Fazel	**Fazel Ansari, TU Wien**
15:00	15:20	23.5	233	Embedding Lean 4.0 in Learning Factories: Pathways to Adoption with AI-Enhanced Assistance Systems	Karbasi, Atieh; Jovanoski, Bojan; Argilovski, Aleksandar; Ansari, Fazel	**Fazel Ansari, TU Wien**

Parallel Session 24 — 2nd floor - room B1.2.16
Theme: Learning Factory Concepts and Infrastructure
Chair: Christopher Prinz, Ruhr-University Bochum, Germany

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
13:40	14:00	24.1	210	Gamifying the Smart Learning Factory - Skopje: A Modular Methodology for Lean Manufacturing Education and Industrial Training	Nikolovska, Blagica; Minovski, Robert; Argilovski, Aleksandar; Jovanoski, Bojan	**Bojan Jovanoski, Ss. Cyril and Methodius University**
14:00	14:20	24.2	211	Closing the Loop Between Training and Shop-Floor Performance in Industrial Setups	Salagianni, Konstantina; Dimosthenopoulos, Dimosthenis; Kaipi, Maria; Gkournelos, Christos; Aivaliotis, Panagiotis; Makris, Sotiris	**Sotiris Makris, Laboratory for Manufacturing Systems & Automation (LMS)**
14:20	14:40	24.3	213	Development and Empirical Validation of an IoT-Enabled Smart Teaching Factory Framework for Enhancing In-dustry 4.0 Competencies	Ab Hadi, Mohd Haidiezul Jamal; Wan Ab Rahim, Wan Mohd Faizal; Abu Bakar, Faizah; Mohd Hanid, Mohd Hazwan; Misbah, Muhammad Nur; Zakaria, Sakinah; Waran, M.Yoges; Seng Tat, Lim	**Mohd Haidiezul Jamal Ab Hadi, Universiti Malaysia Perlis**
14:40	15:00	24.4	224	Planning and Design of Learning Factories Fostering Circular Production: Application on a Hybrid Manufacturing/Remanufacturing System	Süß, Sandro; Mennenga, Mark; Herrmann, Christoph	**Sandro Süß, Technische Universität Braunschweig**
15:00	15:20	24.5	235	Real-Time Production Data Processing Using Edge Computing - A Learning Module on Advanced Machining Analytics and Quality Control	Gfoellner, Michael; Feichtinger, Matthias; Koerner, Stefan; Haas, Franz; Pichler, Rudolf	**Michael Gfoellner, Graz University of Technology**

Starttime	Endtime	
15:20	15:40	**Coffee break**

Parallel Session 25 — Ground Floor – Aula Magna
Theme: Enabling Technologies related to Learning Factories
Session Chair: Sebastian Thiede, University of Twente

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	25.1	250	A Comprehensive Survey of Robotic Applications in Learning Factories	Kemény, Zsolt; Ahmad, Rafiq; Caiazzo, Carlo ; Dimosthenopoulos, Dimosthenis; Gkournelos, Christos; Gualtieri, Luca; Kuhlenkötter, Bernd; Kumar, Atal Anil; Makris, Sotiris; Miro, Michael; Nacsa, János; Paniti, Imre; Rauch, Erwin	**Zsolt Kemény, HUN-REN SZTAKI Institute for Computer Science and Control**
16:00	16:20	25.2	257	Framework For Designing VR Training Sessions Towards Resilient Operator Upskilling	Togias, Theodoros; Topalidis, Georgios; Michalos, George; Aivaliotis, Panagiotis; Makris, Sotiris	**Sotiris Makris, Laboratory for Manufacturing Systems & Automation (LMS)**
16:20	16:40	25.3	260	Design and Evaluation of an AI-Based Assistant to Enhance Learning and Operator Support in a Learning Factory Assembly Environment	Louw, Louis; Van der Merwe, Christine	**Louis Louw, Stellenbosch University**
16:40	17:00	25.4	273	Integrating LLM-Based Multi-Agent Systems into Learning Factories for Intralogistics and Experiential Learning	Renner, Daniel; Künster, Nils; Palm, Daniel; Louw, Louis	**Louis Louw, Stellenbosch University**
17:00	17:20	25.5	223	Smart Maintenance in Learning Factories: Harnessing Data for Predictive Insights	Arenas-Zavala, Iris; Uribe-Hernandez, Hiram; Sanchez-Olvera, Raul; Mijares-Menchaca, Samuel; Monsivais-Mancilla, Mario; Lopez-Suarez, Oscar; Ruiz-Huerta, Leopoldo; Caballero-Ruiz, Alberto; Rodriguez-Gonzalez, Ciro; Tejeda-Alejandre, Raquel	**Raquel Tejeda-Alejandre, Tecnologico de Monterrey**

Parallel Session 26 — 2nd floor - room B1.2.14
Theme:Learning Factory Operation – business models and cooperation
Session Chair: Clemens Faller, Bochum UAS

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	26.1	243	Interactive eLearning through an Adaptive Simulator: Developing PLC Competency in Engineering Education and Manufacturing	Oyesola, Moses Oluwafemi; Nenzhelele, Gift	**Moses Oluwafemi Oyesola, Tshwane University of Technology**
16:00	16:20	26.2	247	Development and Implementation of an IIoT-Enabled Manufacturing Execution System Using Low-Code/No-Code Platforms for Smart Learning Factory	Bradley, Russel; Valadez Arámburo, Diego Alejandro; Salim, Stanley S.; Ha, Emily S.; Reynolds, Mathew J.; Jagdessi, Sashlin; Ng, Yong; Zhao, Wenjian; Cooper, Renne; Levy, Rebecca; Alarcón López, Ángel Mario; Mendoza Quevedo, André Mauricio ; Ramírez-Cedillo, Erick ; Anthony, Brian W.	**Russel Bradley, Massachusetts Institute of Technology**
16:20	16:40	26.3	249	Driving Global Learning: The Cyber-Physical Mobility Lab As A Next-Generation Learning Factory	Mooney, Damian; Lourens, Ann; Reddy, Kumeshan	**Damian Mooney, NELSON MANDELA UNIVERSITY**
16:40	17:00	26.4	198	Teaching IoT–PLC Integration Using Real-Time Material Monitoring	Wanyama, Tom; Barsan, Kafuko Martha; Centea, Dan; Singh, Ishwar	**Tom Wanyama, McMaster University**
17:00	17:20	26.5	201	Integrating Life Cycle Management into Digitalised Learning Factories: A Pedagogical and Experiential Approach to Sustainability Education	Aderoba, Olugbenga Adegbemisola; Swanepoel, Jan Adriaan; Nenzhelele, Tshifhiwa	**Olugbenga Adegbemisola Aderoba, Tshwane University of Technology**

Parallel Session 27 — 2nd floor - room B1.2.15
Theme: Engineering Education – Didactic processes related to Learning Factories
Session Chair: Emmanuel Francalanza, University of Malta

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	27.1	238	Teaching Safety-First Automation: An Industry–Academia Collaboration for a Hazardous Manufacturing Process	Cantu, Cesar; Ortiz-Espinoza, Alexandro Antonio ; Hernandez Calderon, Irene; Ramírez-Cedillo, Erick	**Cesar Cantu, Tecnologico de Monterrey**
16:00	16:20	27.2	245	From Linear To Circular Value Creation: Integrating Research, Education, And Industry In Werk150	Schuhmacher, Jan; Hummel, Vera	**Jan Schuhmacher, Reutlingen University**
16:20	16:40	27.3	246	Learning Module on the Improvement of Intralogistics Processes using Smart Glove and Smart Glasses technologies	Hamid, Muhammad; Schuhmacher, Jan; Hummel, Vera	**Jan Schuhmacher, Reutlingen University**
16:40	17:00	27.4	264	A Learning Factory Model for Cross-Fertilization in Industry 5.0	Vazquez-Hurtado, Carlos; Gomez-Quinones, Jose Isabel; Swain-Oropeza, Ricardo; Galvan-Galvan, José Alfredo; Ahmad, Rafiq; Roman-Flores, Armando	**Carlos Vazquez-Hurtado, Itesm**
17:00	17:20	27.5	288	Learning Factory Quality Control Teaching System Based on Digital Twin: A Case Study of 2D Bending Forming Process for Flat Wire Motor Stator Windings	Xu, Hongtao; Wang, Xianfeng ; Ehrmann, Christopher; Zhang, Weimin ; Jia, Ziwei; Xue, Feng; Shen, Mulin	**Christopher Ehrmann, Tongji University**

Parallel Session 28 — 2nd floor - room B1.2.16
Theme: Learning Factory Concepts and Infrastructure
Session Chair: Rafiq Ahmad, University of Alberta

Starttime	Endtime	No	PaperID	Title	Authors	Presenter
15:40	16:00	28.1	125	Advancing Remanufacturing in Learning Factories – A Configuration Approach for Remodeling	Barth, Jonas; Sandner, Sophie; Rosemeyer, Jannik; Metternich, Joachim	**Jonas Barth, Technical University Darmstadt**
16:00	16:20	28.2	192	Advancing Learning Factory Implementation: Approaches to Latin America	Barrero-Arciniegas, Humberto Alejandro; Rodrigues Santos, Gabriel; Zomer, Thayla; Meisel Donoso, Carlos Antonio; Zancul, Eduardo; Schützer, Klaus; Rauch, Erwin	**Humberto Alejandro Barrero-Arciniegas, Free University of Bolzano-Bozen**
16:20	16:40	28.3	160	A Flexible Learning Factory Based on Production Control by Collaborative Digital Twins	Völker, Sven; Weber, Jakob; Baumgärtel, Hartwig	**Sven Völker, Technische Hochschule Ulm**

Starttime	Endtime			
17:30	18:00	Closure cerimony: summary CLF 2026; preview of industry visits and next CLF 2027 conference, Aula Magna		
18:30	20:30	Bolzano City Tour – Meeting Point: Piazza Walther at 18:30	https://maps.app.goo.gl/5V3sM6siC7CFoeCn8	https://maps.app.goo.gl/5V3sM6siC7CFoeCn8

Friday - 08.05.2026

Starttime	Endtime	Friday - 08.05.2026		
08:00	08:30	Meeting point for Industry Tours: Foyer Faculty of Engineering	Bruno Buozzi Str. 1, Bozen	https://maps.app.goo.gl/vEK7w4DKL9EM7KYr7
08:45	09:00	**Departure Bus towards Alpitronic (15min)**		
09:00	11:00	**ALPITRONIC FRUBONA visit**	Sigmundskronerstrasse 5, Bozen	https://maps.app.goo.gl/sfpDFs3xPyk8FpZ96
08:30	09:00	**Departure Bus towards Würth Italia (30min)- Group 1**		
09:00	11:00	**WÜRTH ITALIA visit**	Bahnhofstrasse, Neumarkt	https://maps.app.goo.gl/bVnJR5NfUoRSJF1D9
12:00	13:00	Lunch at NOI Techpark Bolzano Restaurants		
13:45	18:00	**Lake Tour - meeting point: Faculty of Engineering**		
13:45	18:00	**Mountain Tour - meeting point: Faculty of Engineering**		

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