

APMS 2025 Conference Program (tentative)

Conference Agenda

APMS 2025 Conference

| Date: Sunday, 31/Aug/2025 | |
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| 9:00am - 1:30pm | Marco Garetti Doctoral Workshop Location: Rose A-B & Olive A-B |
| 3:00pm - 6:00pm | WG5.7 Annual Meeting Location: Olive A-B For WG members only |
| 6:00pm - 8:00pm | Welcome Reception Location: Shichirigahama 6-7 |

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| Date: Monday, 01/Sept/2025 | | | | | | | |
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| 9:00am - 9:30am | Opening Ceremony Location: Shichirigahama 1-3 | | | | | | |
| 9:30am - 10:30am | Keynote Speech 1: TBD (Mr. Yasuaki Matsunaga) Location: Shichirigahama 1-3 Chair: Toshiya KAIHARA | | | | | | |
| 10:30am - 11:30am | Keynote Speech 2: Digitalization of manufacturing systems by using Digital Triplet (Prof. Dr. Yasushi Umeda) Location: Shichirigahama 1-3 Chair: Hajime Mizuyama | | | | | | |
| 11:30am - 12:30pm | Keynote Speech 3: Automation in Manufacturing Sites with Collaborative Robots with Ease of Use even for First-time Robot Users (Mr. Masahiro Morioka) Location: Shichirigahama 1-3 Chair: Hironori Hibino | | | | | | |
| 12:30pm - 1:30pm | Lunch Location: Shichirigahama 5-6 | | | | | | |
| 1:30pm - 2:50pm | Transforming Engineer-to-Order Projects, Supply Chains, and Systems - Part 1 Location: Rose A Chair: Martin Rudberg Chair: Jo Wessel Strandhagen 1:30pm - 1:50pm A Coordinated Approach to Apply Value Stream Analysis to the One-of-a-kind Shipbuilding Supply Chain Lennard Thielager, Volodymyr Alieksieiev, Tim Jansen, Christopher Mundt, Hermann Lödding 1:50pm - 2:10pm A conceptual assessment of Digital | Human-Centered Service Engineering and Digital Transformation for Sustainable Service Industries Location: Rose B Chair: Takeshi Shimmura Chair: Takeshi Takenaka 1:30pm - 1:50pm Comparative Refinement of AR-based Inspection via a VR-based Prototyping Cycle - Towards Accelerated Consensus Building in Pharmaceutical Wholesaling Shigeki Ozawa, Takuya Miura, Ryosuke Ichikari, Takumi Miyoshi, Takeshi Kurata 1:50pm - 2:10pm | Enhancing the Value Creation Mechanisms of Manufacturing Value Chains through Digital Platforms, Circular Strategies, and Servitization Principles - Part 1 Location: Olive A Chair: Johan Stahre Chair: Federica Acerbi 1:30pm - 1:50pm Enterprise Architecture Model for digitally enabled Reverse Logistics Martin Perau, Antoine Gaillard, Stefanie Berninger, Phil Caspari, Justus Urboneit, Svenja Spindeldreier, Achim Byl, Maximilian Winkler, Dominic Welsh, Tobias Schröer, Wolfgang Boos 1:50pm - 2:10pm | Designing Next Generation Lean Models Supporting Social, Sustainable, and Smart Production Systems - Part 1 Location: Olive B Chair: Matteo Zanchi Chair: David Romero 1:30pm - 1:50pm The Role of Operators' Learning in Enhancing Lean Benefits: Evaluation of Setup-time Reduction with SMED Anne Zouggar Amrani, Olivia McDermott, Kathryn Cormican, Daryl Powell, Matteo Zanchi 1:50pm - 2:10pm Assessing the Impact of Digital Lean | Smart Manufacturing Evolution: Integrating AI and the Digital Twin for Human-centric, Circular and Collaborative Production Systems Location: Shichirigahama 1 Chair: Khaled Medini Chair: Thor Wuest 1:30pm - 1:50pm Adapting to Technological Change: A Case Study on AI Implications for Shop-Floor Level Worker Viktoria Leutheuser, Julian M. Müller, Kai-Ingo Voigt 1:50pm - 2:10pm Skeletal and Positional Based | Human-centred Work Systems for the Operator 4.0/5.0 in Manufacturing, Logistics, and Service Domains - Part 1 Location: Shichirigahama 2 Chair: Tamas Ruppert Chair: Peter Thorvald 1:30pm - 1:50pm Industrial work instructions with DIGA Peter Thorvald, Sandra Mattsson 1:50pm - 2:10pm Robotic Process Automation: A Qualitative Journey through RPA's Impacts on Company Employees | Meet the Editors - Part 1 Location: Shichirigahama 3 |

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| | <p>Twin potential through Discrete Event Simulation for Smart Mobile Factories in linear infrastructure construction projects</p> <p>Patrick Dallasega, Ishaan Kaushal, Andrea Revolti, Ananya Tripathi, Jianxiang Ma</p> | <p>Modeling Consumer Outing Behavior Using Lifestyle Analysis and Mobility Data</p> <p><u>Akio Sashima</u>, Takeshi Takenaka, Kentaro Watanabe</p> | <p>Manufacturing-As-A-Service: Challenges and Opportunities for Manufacturing Companies</p> <p><u>Giuditta Pezzotta</u>, Sabrina Muttoni, Roberto Sala</p> | <p>Manufacturing Tools on Perceived Cognitive Workload: The Case of a “Pick-to-Light” Poka-Yoke 4.0 System</p> <p><u>Matteo Zanchi</u>, Daryl John Powell, Paolo Gaiardelli, Anne Zouggar Amrani, David Romero</p> | <p>Individual Identification Method in Manufacturing Shop floors</p> <p>Ibuki Inomata, Ryota Kudo, Mitsuyoshi Horikawa</p> | <p>Edgar Simões, Ana Correia Simões, José Coelho Rodrigues, Pedro Lourenço</p> |
| | <p>2:10pm - 2:30pm</p> <p>Challenges and Opportunities for Digital Twin Modelling and Optimization in Yard Operations</p> <p>Linda Helen Sperre, Giuseppe Fragapane, Zachari Thiry, Logan Reed Vallandingham, Pål Furu Kamsvåg, Jo Wessel Strandhagen, Sven-Vegard Buer</p> | <p>2:10pm - 2:30pm</p> <p>Exploring System Architecture for Food Transformation (FX): Advancing Recipe Design with Alternative Proteins</p> <p><u>Tomomi Nonaka</u>, Seiko Shirasaka, Tomomi Honda</p> | <p>2:10pm - 2:30pm</p> <p>Enabling servitisation by balancing activities and capabilities in manufacturing companies</p> <p>Benedicte Ravn Skou, Clarissa Alejandra González Chávez, Michail Beliatas, Björn Johansson, Johan Stahre</p> | <p>2:10pm - 2:30pm</p> <p>Lean vs Green: Conflict or Convergence in Modern Manufacturing</p> <p><u>Beatrice Colombo</u>, Paolo Gaiardelli</p> | <p>2:10pm - 2:30pm</p> <p>Purpose-Driven Digital Twins for Production Systems: Mapping Decisions, KPIs, and Users</p> <p>Adrian Sanchez de Ocana, Jessica Bruch, Ioanna Aslanidou, Imad Berrouyne</p> | <p>2:10pm - 2:30pm</p> <p>Human-Centered Augmented Reality in Manufacturing: Enhancing Efficiency, Accuracy, and Operator Adoption</p> <p><u>Filipa Rente Ramalho</u>, António Lucas Soares, Ana Cristina Simões, António Henrique Almeida, Manuel Oliveira</p> |
| | <p>2:30pm - 2:50pm</p> <p>Cross-Industry Insights: Comparing Engineer-to-Order (ETO) Manufacturing and Industrialized Construction Supply Chains</p> <p>Wilhelm Grindestam, Melvin Karlsson, Krishanth Siva Balan, Hampus Thell, Martin Rudberg, Joakim Wikner</p> | <p>2:30pm - 2:50pm</p> <p>A transportation scheduling method using integer programming</p> <p><u>Jun Takanaga</u>, Nobutada Fujii, Takehide Soh, Takashi Tanizaki, Takeshi Shimmura, Yotetsu Kimura</p> | <p>2:30pm - 2:50pm</p> <p>Manufacturing-as-a-Service: State-of-the-art and the development of a Maturity Model</p> <p>Elena Beducci, Sara Paitoni, Beatrice Bonato, Federica Acerbi, Anna De Carolis, Marco Taisch</p> | <p>2:30pm - 2:50pm</p> <p>Human-Centric Smart Factory Transformation: A Roadmap Integrating Lean, Digitalization, and Organizational Learning</p> <p>Matthew Anderson, Peter Dober, Shaun West, Paolo Gaiardelli</p> | <p>2:30pm - 2:50pm</p> <p>Federated Learning for Smart Manufacturing: Evaluating Deep Learning Architectures for Time Series Forecasting in a Collaborative Framework</p> <p>Md Irfan Khan, Mahady Rayhan, Mojtaba Farahani, Thorsten Wuest</p> | <p>2:30pm - 2:50pm</p> <p>How Industry 4.0 Technologies Are Evolving to Industry 5.0 - A Systematic Literature Review</p> <p><u>Gonzalo Fernandez</u>, Jéssica de Assis Dornelles, Néstor Fabián Ayala</p> |

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| 3:10pm - 4:30pm | <p>Transforming Engineer-to-Order Projects, Supply Chains, and Systems - Part 2 Location: Rose A Chair: Patrick Dallasega Chair: Martin Rudberg</p> | <p>Shaping Human Capital for Industry 5.0: Skills, Knowledge and Technologies for Human-Centric, Resilient, and Sustainable Manufacturing Location: Rose B Chair: Marianonietta Ferrante Chair: Micaela Vitti</p> | <p>Enhancing the Value Creation Mechanisms of Manufacturing Value Chains through Digital Platforms, Circular Strategies, and Servitization Principles - Part 2 Location: Olive A Chair: David Romero Chair: Johan Stahre</p> | <p>Designing Next Generation Lean Models Supporting Social, Sustainable, and Smart Production Systems - Part 2 Location: Olive B Chair: Federica Costa Chair: Matteo Zanchi</p> | <p>Digital Transformation Approaches in Production and Management - Part 1 Location: Shichirigahama 1 Chair: Selver Softic Chair: Ioan Turcin</p> | <p>Human-centred Work Systems for the Operator 4.0/5.0 in Manufacturing, Logistics, and Service Domains - Part 2 Location: Shichirigahama 2 Chair: Peter Thorvald Chair: Tamas Ruppert</p> | <p>Advancing Eco-efficient and Circular Industrial Practices - Part 1 Location: Shichirigahama 3 Chair: Albachiara Boffelli Chair: Beatrice Colombo</p> |
| | <p>3:10pm - 3:30pm Analyzing the factors affecting storage space management at offshore construction yards: Insights from a single case study <u>Jo Wessel Strandhagen</u>, Ottar Bakås, Sven-Vegard Buer</p> | <p>3:10pm - 3:30pm Exploring the Influence of Operator Features on the Performance of Maintenance Tasks: Insight from Indus-try Experts <u>Micaela Vitti</u>, Claudio Sassanelli, Raffaello Pio lavagnilio, Giorgio Mossa, Francesco Facchini</p> | <p>3:10pm - 3:30pm Towards Effective Implementation of Digital Product Passports: Stakeholders Involved and Data Requirements Luca Carminati, Veronica Arioli, Roberto Sala, Fabiana Pirola, Giuditta Pezzotta</p> | <p>3:10pm - 3:30pm Mapping Lean Six Sigma Practices to Environmental Gains: A Case-Based Assessment Model Matteo Ferrazzi, Federica Costa, Matteo Rossini, Alberto Portioli-Staudacher</p> | <p>3:10pm - 3:30pm Designing a maturity model for data-oriented shopfloor management Patrick Eichenseer, Herwig Winkler</p> | <p>3:10pm - 3:30pm Teaching Method for Industrial Robots That Reduces Positioning Errors Caused by Look-Ahead Control Hiroki Takeda, Daiki Kajita, Takahiro Nakano</p> | <p>3:10pm - 3:30pm Circular engineering asset management – A case study on prolonging the lifetime of inventories and equipment Malin Elvin, Filip Skärin, Heinz Möller</p> |
| | <p>3:30pm - 3:50pm Designing a Digital Twin Architecture for Resource Planning in ETO Shipyards: A Case-Informed Approach from the Norwegian Maritime Sector Anita Romsdal, Markus Aarhaug, <u>Jan Ola Strandhagen</u></p> | <p>3:30pm - 3:50pm Competence development for the twin transition: a socio-technical perspective Daryl Powell, Torbjørn Leirimo, Yashoda Karki, Margarida Vasconcelos, Jose Carlos Sa, Eivind Reke</p> | <p>3:30pm - 3:50pm An Iterative Framework for Circular Battery Business Models: Insights from Mapping and Modelling Hidde Huijssoon, Eugen Rodel, Shaun West, Paolo Gaiardelli</p> | <p>3:30pm - 3:50pm Root Cause Analysis in Manufacturing processes: A Bayesian Network based approach Federica Costa, Alessia Serafini, Matthias Thüerer, Alberto Portioli Staudacher</p> | <p>3:30pm - 3:50pm Technological convergence of Operational Technology (OT) and Information Technology (IT) in the Digital Industry: Conceptual analysis of OT, highlighting its convergences and differences with IT <u>Marcelo Tsuguio Okano</u>, William Aparecido Celestino Lopes, Chan Kong Fong, João Carlos Lopes Fernandes, Sérgio Miele Ruggero</p> | <p>3:30pm - 3:50pm Organizational barriers to the operator 4.0, operator 5.0 and human-centricity paradigms: A mixed methods study Martina Ortova, Anne Grethe Syversen, Godfrey Mugurusi, Morteza Alaeddini</p> | <p>3:30pm - 3:50pm Enhancing Circular Economy Platform Design with Artificial Intelligence-Based Functionalities Marco Formentini, Janpriy Sharma, Nicola Mezzetti, Alfredo Apicella</p> |
| | <p>3:50pm - 4:10pm How Contradictions Impact Practices in Supply Chain Planning in Engineer-to-order-Settings - a Multi Case Study Nils-Erik Ohlson, Jenny Bäckstrand</p> | <p>3:50pm - 4:10pm Circular Economy Upskilling: A Course on Digital Transition and Transformation</p> | <p>3:50pm - 4:10pm Mapping Simulation Trends in Supply Chain Management: A Structured Literature Review</p> | <p>3:50pm - 4:10pm Key Characteristics of Luxury fashion Supply Chain and Impact on Operational Performance: A qualitative Study Alessia Bilancia, Federica Costa, Anne Zouggar Amrani,</p> | <p>3:50pm - 4:10pm Integrating skills for Twin Transformation in manufacturing: A conceptual Talent Triangle Framework</p> | <p>3:50pm - 4:10pm From Proactive to Embodied Collaboration: A System-Centric Approach to Advancing HRC Quality</p> | <p>3:50pm - 4:10pm Advancing circular industrial practices: a comparison of logics in Scotland and the Netherlands <u>Melissa Marques-McEwan</u>, Seemab Farooqi, Ian Robson,</p> |

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| | <p>4:10pm - 4:30pm</p> <p>Synchronizing the Shipbuilding Supply Chain with Generic Cumulative Production Figures</p> <p><u>Volodymyr Alieksieiev</u>, Lennard Thielager, Tim Jansen, Christopher Mundt, Hermann Lödding</p> | <p>Federica Acerbi, Adriana Hofmann Trevisan, Sergio Terzi, Claudio Sassanelli</p> <p>4:10pm - 4:30pm</p> <p>Gap analysis of Industry 5.0-driven Product Lifecycle Management</p> <p>Ilaria Bucci, Virginia Fani, Romeo Bandinelli, Monica Rossi, Claudio Sassanelli</p> | <p><u>Giovanni Romagnoli</u>, Francesco Moroni, Nicola Mercogliano, Francesco Zammori</p> <p>4:10pm - 4:30pm</p> <p>Where to use XR technologies in a company? A decision-making approach using the value stream approach</p> <p>Wiesław Urban, <u>Klaudia Tomaszewska</u></p> | <p>Alberto Portioli Staudacher</p> <p>4:10pm - 4:30pm</p> <p>Empirical Analysis of the Influence of the Takt Time of Automotive Assembly Lines on the Efficiency on These Lines</p> <p>Christoph Roser, Thorsten Ahrens, Jochen Roser</p> | <p>Danijela Ciric Lalic, Milena Savkovic, Dunja Kobiljski, Anja Novakovic, <u>Ugljesa Marjanovic</u></p> <p>4:10pm - 4:30pm</p> <p>Machine Learning-Based Methodology For Root Cause Analysis Of Extended Throughput Time In Production</p> <p>Kira Welzel, Lucas Wieggrebe, Matthias Schmidt</p> | <p><u>Francesco Mancusi</u>, W. Patrick Neumann, Fabrizio Caccavale, Fabio Fruggiero</p> <p>4:10pm - 4:30pm</p> <p>Investigation of Compression Strength Enhancement in 3D-Printed Hollow Structures Using Granular Backfill</p> <p>Yannick Taschbach, Alexander Keuper, Günther Schuh</p> | <p>Audrey Paterson, William Jackson, Nicki Souter, Luise Elsaesser</p> |
| <p>4:50pm - 6:30pm</p> | <p>Transforming Engineer-to-Order Projects, Supply Chains, and Systems - Part 3</p> <p>Location: Rose A</p> <p>Chair: Jo Wessel Strandhagen</p> <p>Chair: Patrick Dallasega</p> <p>4:50pm - 5:10pm</p> <p>Configuring the Configurator: Best Practices for Developing Product Configurators in Engineer-to-Order Firms</p> <p>Erlend Alfnes, <u>Omid Maghazei</u>, Bella Belerivana Nujen, Johanne Bjørnsen Skjetne, Ludvig Lilleby Johansson</p> <p>5:10pm - 5:30pm</p> <p>Leveraging Reverse Blending for mass</p> | <p>Innovative approaches and methods for developing industry 4.0 and industry 5.0 skills</p> <p>Location: Rose B</p> <p>Chair: Fabiana Pirola</p> <p>Chair: Emrah Arica</p> <p>4:50pm - 5:10pm</p> <p>The Role of Digital Training Platforms in Facilitating the Sustainability Transitions of European SMEs: Insights from the EU-Funded Project "STAGE"</p> <p>Serkan Eren, Chibuikem Nwagwu, <u>Emrah Arica</u>, Eivind Reke</p> <p>5:10pm - 5:30pm</p> <p>Use of Generative AI for Assessing Experiential Learning</p> | <p>Supply Network Planning and Optimization</p> <p>Location: Olive A</p> <p>Chair: Jonghun Woo</p> <p>Chair: Hermann Lödding</p> <p>4:50pm - 5:10pm</p> <p>Modelling of Logistics Objectives at the Sea Side of Container Terminals</p> <p><u>Florian Möhle</u>, Svenja Koch, Carlos Jahn, Hermann Lödding</p> <p>Hamburg University of Technology, Germany</p> <p>5:10pm - 5:30pm</p> <p>RAPID Intermodal Transport System: A New Concept for Joint Transportation of Passengers and Freight</p> <p>Synnøve Sunne Hasslan¹, Volodymyr</p> | <p>Circular and Green Manufacturing</p> <p>Location: Olive B</p> <p>Chair: Kjeld Nielsen</p> <p>Chair: Konstantinos Kaparis</p> <p>4:50pm - 5:10pm</p> <p>Optimizing the Reuse of Requalified CFRP in Drone Manufacturing</p> <p>Kyriakos Bitsis¹, <u>Konstantinos Kaparis</u>^{1,4}, Georgios Zois^{2,4}, Silvio Pappada³</p> <p>1: University of Macedonia, Greece; 2: Athens University of Economics and Business, Greece; 3: Cetma Composites Srl, Italy; 4: Optiscale, Greece</p> <p>5:10pm - 5:30pm</p> <p>Scientific Concept For Analyzing The Potential Of Energy-</p> | <p>Digital Transformation Approaches in Production and Management - Part 2</p> <p>Location: Shichirigahama 1</p> <p>Chair: Ugljesa Marjanovic</p> <p>Chair: Vlad I. Bocanet</p> <p>4:50pm - 5:10pm</p> <p>Concurrent Design Facility Definition for Advancing the Integration of Smart Automation in Human Space Applications</p> <p>Cristian Vizitiu, Ioan Turcin, Kevin Dominey, Adrian Dinculescu, Alexandru Nistorescu, Mihaela Marin, Cosmin Dugan, Sorin Moraru</p> <p>5:10pm - 5:30pm</p> <p>Methods & Technologies for Modularising Wire</p> | <p>Human-centred Work Systems for the Operator 4.0/5.0 in Manufacturing, Logistics, and Service Domains - Part 3</p> <p>Location: Shichirigahama 2</p> <p>Chair: Peter Thorvald</p> <p>Chair: Tamas Ruppert</p> <p>4:50pm - 5:10pm</p> <p>Eye-Guided Human-Robot Collaborative Assembly: A Feasibility Study</p> <p>Raquel Quesada Díaz, Álvaro Ballesteros Martín, Frank Luque Lineros, Erik Billing</p> <p>5:10pm - 5:30pm</p> <p>The impact of work instruction simplification on operator performance</p> | <p>Advancing Eco-efficient and Circular Industrial Practices - Part 2</p> <p>Location: Shichirigahama 3</p> <p>Chair: Yusuke Kishita</p> <p>Chair: Beatrice Colombo</p> <p>4:50pm - 5:10pm</p> <p>Bridging Fashion and Agri-Food Sectors: Exploring Industrial Symbiosis for Sustainable Material Innovation</p> <p>Federica Acerbi, Alessandra Aleccia, Francesca Consonni, Beatrice Colombo, Virginia Fani</p> <p>5:10pm - 5:30pm</p> <p>Culture as Catalyst: Navigating Circular Manufacturing in</p> |

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| | <p>customization in the cosmetics industry Latifa Benhamou</p> | <p>in Engineering Education <u>Stefano Marazzini</u>, Rossella Pozzi, Tommaso Rossi, Nicolò Saporiti, Fabiana Pirola, Monica Rossi, Sergio Terzi</p> | <p>Aliexsieiev², Rafat Beigpoor Shahrivar², Ann-Kathrin Lange², Per Haavardtun¹, Kenn Steger-Jensen^{1,3} 1: University of South-Eastern Norway, Norway; 2: Hamburg University of Technology, Germany; 3: Aalborg University, Denmark</p> | <p>Oriented Production Planning And Control In SMEs Manuel Rischmann¹, Markus Weber², Tobias Hiller¹, Stefan Roth², Tabea Marie Demke¹, Peter Nyhuis¹, Matthias Schmidt¹ 1: Leibniz University Hannover, Institute of Production Systems and Logistics; 2: Fraunhofer Institute for Casting, Composite and Processing Technology IGCV</p> | <p>Harness Designs in the Automotive Industry <u>Jann Warnecke</u>, Steffen Auchtor, Patrick Bründl, Jörg Franke</p> | <p>and learning curve efficiency Mónika Gugolya, Vera Varga, Tibor Medvegy, Tamas Ruppert</p> | <p>Multinational Enterprises Benedetta Carrara, Federica Acerbi, Beatrice Colombo, Paolo Gaiardelli, Shaun West</p> |
| | <p>5:30pm - 5:50pm Reviewing Interoperability in Engineer-to-Order Industry Vésteinn Sigurjónsson, Jessica Bruch, Anna Granlund</p> | <p>5:30pm - 5:50pm The Importance of Skills for Society 5.0 <u>Marco Dautaj</u>, Monica Rossi, Sergio Terzi</p> | <p>5:30pm - 5:50pm Inventory Allocation for Leasing and Sales Demands <u>Jiveon Lee</u>, Ilkyeong Moon Seoul National University, Korea, Republic of (South Korea)</p> | <p>5:30pm - 5:50pm Future-proofing production and operations management education: An IFIP WG5.7 benchmarking study Daryl Powell¹, Alessia Napoleone², David Romero³, Sabine Waschull⁴, Matteo Zanchi⁵ 1: University of South-Eastern Norway, Norway; 2: TU Delft; 3: Tecnológico de Monterrey; 4: University of Groningen; 5: University of Bergamo</p> | <p>5:30pm - 5:50pm Digitalisation and Visualisation via Target-Actual Comparison by a Large-Scale Component Example <u>Kay Burow</u>, Patrick Klein, Karl Hribernik, Klaus-Dieter Thoben</p> | <p>5:30pm - 5:50pm Integration of Human Learning and Complexity Effects in Production Ramp-up Cost Ahmadreza Nadaffard, Negar Karimi, <u>Tamas Ruppert</u></p> | <p>5:30pm - 5:50pm Implementing Recycling Circular Economy Business Model in the Aluminum Value Chain with the Aid of Systems Thinking: Challenges and Foresight Reflections Ana Lyvia Tabosa da Silva, Mohammad Javadinia Azari</p> |
| | | <p>5:50pm - 6:10pm Designing Practical Learning Activities for Industry 4.0 and 5.0: A Case Study in a Learning Factory Mattia Galimberti, Luca Carminati, Roberto Sala, Fabiana Pirola, Rossella Pozzi, Monica Rossi</p> | <p>5:50pm - 6:10pm RUBI: Relative-Urgency Based Initialization for solving Job Shop Scheduling Problem <u>Jiwon Baek</u>¹, Hyunjin Oh¹, Jong Hun Woo^{1,2} 1: Seoul National University, Korea, Republic of (South Korea); 2: Research Institute of Marine Systems Engineering, Seoul National University, Korea, Republic of (South Korea)</p> | <p>5:50pm - 6:10pm Identifying Key Aspects of Circular Manufacturing Systems: A</p> | <p>5:50pm - 6:10pm Explainable Anomaly Detection for Predictive Maintenance Using Synthetic Benchmarks and Human-in-the-Loop Labeling Daniel Resanovic, Selver Softic, Nicolae Balc</p> | <p>5:50pm - 6:10pm Evaluating User-Centered Visualizations of Traffic Anomalies: A User Study Nadine Yilmaz, Rana El Khoury, Lisa Jantzen, Regina Kempen, Doris Aschenbrenner</p> | <p>5:50pm - 6:10pm Transition to a Circular and Sustainable Leather Supply Chain: a Qualitative Comparative Analysis Martina Cornaro, Juan Maciel, Albachara Boffelli, Carlo Brondi, Beatrice Colombo, Filippo Visintin, Andrea Zangiaccomi</p> |
| | | <p>6:10pm - 6:30pm Guidelines for Designing Engineering Education in the Context of Industry 4.0 and 5.0 Mohammad Hossein Dehbozorgi, Fabiana Pirola, Rossella Pozzi, Daniele Contestabile, Brendan Patrick Sullivan, Monica Rossi, Sergio Terzi</p> | <p>6:10pm - 6:30pm</p> | <p>5:50pm - 6:10pm Identifying Key Aspects of Circular Manufacturing Systems: A</p> | <p>6:10pm - 6:30pm Multi-agent framework for AI-supported collaborative Root Cause Analysis in quality assurance <u>Vlad I. Bocanet</u>, Mircea H. Muntean, Cristina Fleseriu</p> | <p>6:10pm - 6:30pm Technocontrol and Technoaugmentation Stress: Expanding the Framework of Technostress in Response to Emerging Workplace Technologies Solveig Beyza Narli Evenstad</p> | <p>6:10pm - 6:30pm</p> |

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Constraint Programming-based Optimization Algorithm for International Voyage Planning Considering Barge Loading Space Allocation

Chang-hyeon Song¹, Ki-young Cho¹, Hong Lee¹, Jonghun Woo^{1,2}

1: Department of Naval Architecture and Ocean Engineering, Seoul National University, Korea, Republic of (South Korea); 2: Research Institute of Marine Systems Engineering, Seoul National University, Korea, Republic of (South Korea)

Structured Literature Review

Emma B. Worup, Ann-Louise Andersen, Thomas D. Brunoe, Kjeld Nielsen
Aalborg University, Denmark

Three Archetypes of Circular Manufacturing Practices

Mélanie Despeisse, Shozo Takata, Yusuke Kishita, Federica Acerbi

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Date: Tuesday, 02/Sept/2025

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| 9:00am - 10:00am | Keynote Speech 4: The Future of Lean: Beyond Borders, Beyond Myths, Beyond Human Limits (Prof. Dr. Daryl Powell) Location: Shichirigahama 1-3 Chair: Tomomi Nonaka | | | | | | |
| 10:00am - 11:00am | Keynote Speech 5: Are the benefits of digitalization, including Industrie 4.0 and AI, really contributing to the realization of a sustainable society? Introducing an international project focusing on the Human-Machine-Interaction (Dr. Youichi Nonaka) Location: Shichirigahama 1-3 Chair: Eiji Morinaga | | | | | | |
| 11:00am - 12:00pm | Keynote Speech 6: Development and Social implementation of Interverse services - circulating the value between the meta-verse and the universe - (Dr. Masaaki Mochimaru) Location: Shichirigahama 1-3 Chair: Toshiya KAIHARA | | | | | | |
| 12:00pm - 1:00pm | Lunch Location: Shichirigahama 5-6 | | | | | | |
| 1:00pm - 2:40pm | Digital Services and Smart Product-Service Systems Location: Rose A Chair: Regina Schrank Chair: Mike Freitag 1:00pm - 1:20pm Digital transformation in mechanical engineering - Digital Twins in Virtual Commissioning. A use case in a German small and medium-size company Mike Freitag¹, Oliver Hämmerle² 1: Fraunhofer IAO, Germany; 2: Institute of Human Factors and Technology Management IAT, University of Stuttgart, 1:20pm - 1:40pm Systematic Literature Review of Use Cases for Data-Driven | Methods and Tools for Assessing the Value of Digital, Sustainable and Servitized Offerings of Manufacturing Companies Location: Rose B Chair: Claudio Sassanelli Chair: Giuditta Pezzotta 1:00pm - 1:20pm Total Cost and Total Value of Ownership in PSS: A Model for Economic and Environmental Sustainability Roberto Sala, Marco Ardolino, Federico Adrodegari, Giuditta Pezzotta 1:20pm - 1:40pm Enabling Circular Business Models and Digital Transformation for Sustainable Value | AI-Driven Decision Support and Human-AI Collaboration for Smart and Sustainable Supply Chains - Part 1 Location: Olive A Chair: Giovanni Zenezini Chair: TBD 1:00pm - 1:20pm Transfer Learning for Transportation Cost Prediction in Modular Construction Eduardo e Oliveira, Maria Pereira, Teresa Pereira, Marisa Pereira 1:20pm - 1:40pm Deep Reinforcement Learning for Multi-stage Inventory Optimization with Agent-based Supply Chain Simulator Atsuki Kiuchi, Hitohiro Eto | Digital Twins and AI for Dynamic Scheduling and Human-Centric Applications - Part 1 Location: Olive B Chair: Yongkuk Jeong Chair: Magnus Wiktorsson 1:00pm - 1:20pm Multi-objective optimization of worker assignment for manual assembly production lines: A genetic approach Changha Lee, Sang Do Noh 1:20pm - 1:40pm Feasibility study on the interactive AI scheduling with LLM technology for human-centric Industry 5.0 Hyunjin Oh, Jiwon Baek, Kiyoung Cho, Jonghun Woo | Digital Transformation Approaches in Production and Management - Part 3 Location: Shichirigahama 1 Chair: Selver Softic Chair: Ioan Turcin 1:00pm - 1:20pm Supporting Strategic Decision Making for Data Monetization in the Era of Digital Transformation Martin Loers, Dominik Royé, Ilyas Laihem 1:20pm - 1:40pm AI enhanced quality assurance reporting of surface deviation data in optical 3D inspection Mircea H. Muntean, Vlad I. Bocanet, Domnita Fratila | Human-centred Work Systems for the Operator 4.0/5.0 in Manufacturing, Logistics, and Service Domains - Part 4 Location: Shichirigahama 2 Chair: Johan Stahre Chair: Vittaldas V. Prabhu 1:00pm - 1:20pm Inside-out: an exploratory study of the emotional profile of industrial operators for human-centric factories and empathic AI assistants Giuseppina Ambrogio, Francesco Longo, Giovanni Mirabelli, Antonio Padovano 1:20pm - 1:40pm Architecture for Dynamic Process Safety Management | APMS Talks - Part 1 Location: Shichirigahama 3 |

APMS 2025 Conference Program (tentative)

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| <p>Product Development in Manufacturing Companies <u>Henry Himmelstoss</u>¹, <u>Thomas Bauernhansl</u>^{1,2} 1: Fraunhofer Institute for Manufacturing Engineering and Automation IPA, Germany; 2: Institute of Industrial Manufacturing and Management, University of Stuttgart</p> <p>1:40pm - 2:00pm Development of an Interactive decision support system for part selection in additive manufacturing Jayakrishnan Jayapal, Senthilkumaran Kumaraguru, Sudhir Varadarajan Indian Institute of Information Technology Design and Manufacturing Kancheepuram, India</p> <p>2:00pm - 2:20pm Towards a Framework for Value-based Pricing of Digital Products in the Manufacturing Industry Regina Schrank, Günther Schuh FIR e.V. an der RWTH Aachen, Germany</p> | <p>Creation in European Manufacturing SMEs <u>Stefan Alexander Wiesner</u>, Jannicke Baalsrud Hauge, Klaus-Dieter Thoben</p> <p>1:40pm - 2:00pm Exploring the pairing of Circular Manufacturing data categories and Rebound Effect factors Mariantonietta Ferrante, Micaela Vitti, Federica Acerbi, Salvatore Digiesi, Claudio Sassanelli</p> <p>2:00pm - 2:20pm Use Phase-Oriented Innovation Assessment in Early Development Stages: A Value-in-Use Approach for Thermal Interface Materials <u>Friederike Stefanowski</u>, Timon Steinhoff, Luca Köhnen, Christian Klose, Matthias Schmidt, Hans Jürgen Maier, Peter Nyhuis</p> | <p>1:40pm - 2:00pm AI-enhanced demand forecasting: a design science approach <u>Giorgio Scarton</u>, Marco Formentini, Nadia Benini</p> <p>2:00pm - 2:20pm Perceptions and Trust in AI-Driven Decision Support Systems in Supply Chain Management <u>Maja Charlotte Willimowski</u>, Victoria Schneider</p> <p>2:20pm - 2:40pm Machine learning-based cost estimation approach for furniture manufacturing Maria Teresa Pereira, Eduardo e Oliveira, António Amaral, Marisa G. Pereira</p> | <p>1:40pm - 2:00pm Automating Task Monitoring in Industrial Setting using Combined Gesture Recognition and Object Detection Smita Priyadarshani, Kakeru Koizumi, Catherine Kuramitsu, Hiroshi Watanabe, Sooyoung Jeong</p> <p>2:00pm - 2:20pm Extending ISO 23247: A Production Logistics Information Model for Integrated Digital Twins Seoyoung Jo, Eirk Flores-García, Yongkuk Jeong, Magnus Wiktorsson, Sang Do Noh</p> <p>2:20pm - 2:40pm Graph Attention Network based Deep Reinforcement Learning Approach for Dynamic Human Order Picking Kiyoungh Cho, Donghoon Kwak, Seungheon Oh, Jonghun Woo</p> | <p>1:40pm - 2:00pm Digitalization and De-Digitalization: Investigating the Phenomenon of Declining Industry 4.0 Adoption Rates in German Manufacturing Christian M. Lerch, <u>Djerdj Horvat</u>, Angela Jäger, Daniel Berner, Iztok Palčič</p> <p>2:00pm - 2:20pm Leveraging AI in Production for Product Innovation: Insights from German Manufacturing <u>Djerdj Horvat</u>, Christian Lerch, Angela Jäger, Heidi Heimberger</p> <p>2:20pm - 2:40pm Navigating Digitalization in Traditional Manufacturing: Aligning Digital Ambition with Industrial Context Sven-Vegard Buer, Jo Wessel Strandhagen, Erik Gran</p> | <p>using Digital Twin and Machine Learning Ibrahim Saleh Aljahwari, <u>Vittaldas Prabhu</u></p> <p>1:40pm - 2:00pm AI Cockpit: A Meaningful Human Control Interface for Mitigating AI Risks for Hybrid Intelligence Systems Doris Aschenbrenner, Anett Hübner, Nektaria Tagalidou, Michael Bui, Mathias Vukelić, Nadine Yilmaz, Markus Zarbock, Natalie Basedow</p> <p>2:00pm - 2:20pm Developing Code Agents for Robot Programming: Technical and Managerial Perspectives <u>Omkar Salunkhe</u>, Clarissa González, Hao Wang, Anna Syberfeldt, David Romero, Johan Stahre</p> | |
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APMS 2025 Conference Program (tentative)

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| 3:00pm - 4:40pm | <p>How Supply Chain Can React to Internal and External Disruptions? - Part 1 Location: Rose A Chair: Giulio Mangano Chair: Chandima Ratnayake</p> | <p>Enabling Circularity in Batteries & E-Waste with Digital Technologies: From Production to Recycling - Part 1 Location: Rose B Chair: Mélanie Despeisse Chair: Koteswar Chirumalla</p> | <p>AI-Driven Decision Support and Human-AI Collaboration for Smart and Sustainable Supply Chains - Part 2 Location: Olive A Chair: Eduardo e Oliveira Chair: Alexandra Lagorio</p> | <p>Digital Twins and AI for Dynamic Scheduling and Human-Centric Applications - Part 2 Location: Olive B Chair: Jonghun Woo Chair: Erik Flores-García</p> | <p>Digital Transformation Approaches in Production and Management - Part 4 Location: Shichirigahama 1 Chair: Ugljesa Marjanovic Chair: Selver Softic</p> | <p>Artificial Intelligence / Machine Learning in Manufacturing - Part 1 Location: Shichirigahama 2 Chair: Boonserm Kulvatunyou Chair: Jürgen Lenz</p> | <p>APMS Talks - Part 2 Location: Shichirigahama 3</p> |
| | <p>3:00pm - 3:20pm Mitigating Disruptions in Agri-Food Supply Chains to Enhance Farmer Livelihoods and Food Security Madushan Madhava Jayalath, <u>R.M. Chandima Ratnayake</u>, H. Niles Perera, Amila Thibbotuwawa</p> | <p>3:00pm - 3:20pm Camera-based Methodology for the Automated Real-Time Assessment of Material Thinning in Battery Cell Manufacturing Florens Wurmer, Niklas Kesten, Matthias Burgard, Marcel Daumüller, Florian Maier</p> | <p>3:00pm - 3:20pm Intelligent Conceptual Architecture as a Proposal for Integration of Artificial Intelligence for Accident Prevention with Heavy Equipment Acácio Pereira de Macedo Neto, João Gilberto Mendes dos Reis, Paula Ferreira da Cruz Correia, Gabriel Santos Rodrigues, Joel Porto Alves, Marcio José Padovan de Antônio, Fabricio Henrique do Nascimento da Silva, Jonas Santos de Souza</p> | <p>3:00pm - 3:20pm Digital Twin for Intelligent Production Management using AI Computer Vision and Proactive Simulation Hyewon CHO, Hayong Lee, Sang Do Noh, Jang Won Choi, Binglu Li</p> | <p>3:00pm - 3:20pm From Analog to Digital: A Frugal Framework for Digital Transformation in Manufacturing Microenterprises under Resource Constraints <u>Mohammed Omer</u>, Sonja Buxbaum-Conradi, Manuel Moritz, Tobias Redlich</p> | <p>3:00pm - 3:20pm AI estimated Assembly Time Forecasting for Engineering-to-Order Manufacturing - Use Case Study on Production Planning of Machine Tools Nicolas Riedel, <u>Jürgen Lenz</u>, Stefan Braunreuther Technical University of Applied Sciences Augsburg, Germany</p> | |
| | <p>3:20pm - 3:40pm Quantifying Forecast and E-Kanban Adaptation Fit: A Contingency-Based Resource-Based View and Differentiation System Approach <u>Christian Ricky</u>, Nobuaki Minato, Kuniaki Tanaka, Manabu Sawaguchi</p> | <p>3:20pm - 3:40pm Challenges in Achieving Circular Battery Production in Sweden Martin Kurdve, <u>Malin Elvin</u>, Magnus Widfeldt, Koteswar Chirumalla</p> | <p>3:20pm - 3:40pm Evaluating Crowdsourcing Logistics Platforms in São Paulo and Rio de Janeiro, Brazil. Márcio José Padovan de Antônio, João Gilberto Mendes dos Reis, <u>Paula Ferreira da Cruz Correia</u>, Acácio Pereira de Macêdo Neto, Gabriel</p> | <p>3:20pm - 3:40pm Digital Twins as a vector of convergence between Operational Technology (OT) and Information Technology (IT) William Aparecido Celestino Lopes, Adilson Cunha Rusteiko, Cleiton Rodrigues Mendes, Nicolas Vinicius Cruz Honório, <u>Marcelo Tsuguio Okano</u></p> | <p>3:20pm - 3:40pm Acceleration of Digitalisation in Manufacturing SMEs through Capability Maturity Assessment Guven Gurkan Inan, Luciana Blaha, Tom Pfefferkorn</p> | <p>3:20pm - 3:40pm Automated Footwear Surface Inspection System Based on the Deep Learning Object Detection <u>Jaebong Cho</u>, Jihoon Nam, Hyunbo Cho Department of Industrial and Management Engineering, Pohang University of Science and Technology, Republic of Korea</p> | |
| | <p>3:40pm - 4:00pm A Systematic Literature Review on Disruptions in Construction Supply Chain: Some Stylized rends</p> | <p>3:40pm - 4:00pm Business model archetypes and deployment strategies for EV battery swapping – Preliminary insights Ignat Kulkov, Koteswar Chirumalla</p> | <p>3:20pm - 3:40pm Evaluating Crowdsourcing Logistics Platforms in São Paulo and Rio de Janeiro, Brazil. Márcio José Padovan de Antônio, João Gilberto Mendes dos Reis, <u>Paula Ferreira da Cruz Correia</u>, Acácio Pereira de Macêdo Neto, Gabriel</p> | <p>3:40pm - 4:00pm Computer Vision-based Environmental Perception for a Collaborative Robot Jonas Rieder, Dennis Kollmann, Rana El</p> | <p>3:40pm - 4:00pm Applying Technical Indicators to Year-Ahead Electricity Futures in Volatile Markets <u>Jelena Popara</u>, Nenad Glavcic, Milena Savkovic, Danijela Ciric Lalic, Bojan Lalic</p> | <p>3:40pm - 4:00pm Exploring Zero-Shot Data Drift Detection</p> | |

APMS 2025 Conference Program (tentative)

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| Gabriel Castelblanco, Giulio Mangano, Mahsa Mahdavishari | Blockchain Technology for Enabling Battery Circularity: Key Challenges and Benefits <u>Moshkan Ebrahimi</u> , Koteswar Chirumalla, Anas Fattouh | 3:40pm - 4:00pm Soybean Logistics Corridor in Brazil: A Route Analysis Using AHP/ANP Rodrigo Carlo Toloi, Kennya Vieira Queiroz, Miguel Renon, Daniele dos Santos Ramos Xavier, Marcia Macario dos Santos, Izolina Margarida de Souza, Alexandra Camila da Paz Silva, Fabrício Henrique do Nascimento da Silva, Acácio Pereira de Macêdo Neto, <u>Gabriel Santos Rodrigues</u> , Robson Jeremias, João Gilberto Mendes dos Reis | 4:00pm - 4:20pm Reinforcement Learning in Production Control: A Deep Dive into Order Release Jonas Schneider, Peter Nyhuis, Matthias Schmidt Institute of Production Systems and Logistics, Germany | 4:00pm - 4:20pm Mapping the Intersection of Product-Service Systems, Industry 5.0, and the Sustainable Development Goals: A Bibliometric Study Slavko Rakic, Dragana Slavic, Selver Softic, Ioan Turcin, Vlad Bocanet, Veronica Arioli, Roberto Sala, Nenad Medic | with Large Language Models <u>Minjoo Park</u> , Jihoon Nam, Hyunbo Cho Department of Industrial and Management Engineering, Pohang University of Science and Technology, Republic of Korea |
| | 4:20pm - 4:40pm Digital Technologies for EV battery Circularity: An explorative study on 10R circular strategies Jing Zhao, Koteswar Chirumalla, Moris Behnam, Ignate Kulkov | 4:00pm - 4:20pm A Literature Review on the Integration of System Dynamics and Machine Learning/Artificial Intelligence in Addressing Environmental Matters Mustafa Ozan Nesanır, <u>Giovanni Zenezini</u> , Ozlem Senvar, Filippo Maria Ottaviani | 4:20pm - 4:40pm Integrating Large Language Models and Digital Twins in Manufacturing: Opportunities and Challenges for Production Logistics and Assembly Environments <u>Yongkuk Jeong</u> , Christian Kober, Marc Fette | 4:20pm - 4:40pm Analyzing Adoption of AI and Human-Centricity in Serbian Manufacturing Firms Jelena Crnobrnja, Djerdj Horvat, David Romero, Tamás Ruppert, <u>Ugljesa Marjanovic</u> | 4:00pm - 4:20pm Machine Learning Lifecycle Explorer: Leverage the lifecycle metadata (onto) logically Perawit Charoenwut, Milos Drobnjakovic, Hakju Oh, Ana Nikolov, <u>Boonserm Kulvatunyou</u> National Institute of Standards and Technology, United States of America |
| | | 4:00pm - 4:20pm A Literature Review on the Integration of System Dynamics and Machine Learning/Artificial Intelligence in Addressing Environmental Matters Mustafa Ozan Nesanır, <u>Giovanni Zenezini</u> , Ozlem Senvar, Filippo Maria Ottaviani | | | 4:20pm - 4:40pm An Ontological Perspective on the Biomanufacturing Process Design Ana Nikolov ¹ , Stephen Granite ^{1,2} , Milos Drobnjakovic ¹ , John Beverley ^{2,3,4} , Boonserm Kulvatunyou ¹ 1: National Institute of Standardization and Technology, United States of America; 2: National Center for Ontological Research, University of Buffalo, Buffalo, New York, |
| | | 4:20pm - 4:40pm | | | |

APMS 2025 Conference Program (tentative)

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| | | | Improving Quality Management through AI-Powered 8D-Reports <u>Elena Andrushchenko</u> , Turgut Refik Caglar, Dogan Efe, Roland Jochem | | | U.S.A.; 3: University at Buffalo, Buffalo, New York, U.S.A.; 4: Institute for Artificial Intelligence and Data Science, Buffalo, New York, U.S.A. | |
| 5:00pm - 6:00pm | How Supply Chain Can React to Internal and External Disruptions? - Part 2 Location: Rose A Chair: Giulio Mangano Chair: Albachiara Boffelli 5:00pm - 5:20pm Strategic relocations: case studies unravelling motivations and performance in outsourced reshoring decisions Albachiara Boffelli, Simone Marcolongo, Alessio Ronchini 5:20pm - 5:40pm The Influence of the VUCA World on Production Sys-tems: A Scenario-Based Analysis Tanya Jahangirkhani, Eddie Sigrist, Serjosh Wulf, Matthias Schmidt 5:40pm - 6:00pm Analysis of vulnerabilities in global production | Enabling Circularity in Batteries & E-Waste with Digital Technologies: From Production to Recycling - Part 2 Location: Rose B Chair: Koteshwar Chirumalla Chair: Mélanie Despeisse 5:00pm - 5:20pm Toward Smarter EV Battery Operations: Leveraging AI, Data Management, and Optimization in First-Life Use Koteshwar Chirumalla, Anas Fattouh, Kristian Sandström, Moris Behnam, Ioana Stefan, Ignat Kulkov, Martin Kurdve, Niclas Ståhlbom, Jing Zhao, Moshkan Ebrahimi, Erik Dahlquist, Satyam Paul 5:20pm - 5:40pm Unlocking Circularity in Switzerland's Metal Recycling System: The Role of Sensor Technologies and Systemic Barriers Katja Dmitrijeva, Simon Züst, Christine Grimm Christine Grimm, Klaus | Sustainable Product Design and Engineering Location: Olive A Chair: Alessia Napoleone Chair: Seyoum Eshetu Birkie 5:00pm - 5:20pm Green Design Methodology in Production Equipment Design and Acquisition: State of Practice and Way Forward Seyoum Eshetu Birkie ¹ , Zuhara Zemke Chavez ¹ , Rafael Laurenti ² 1: KTH Royal Institute of Technology, Sweden; 2: RISE Research Institute of Sweden, Sweden 5:20pm - 5:40pm Bridging the Gap between Circularity and Sustainability - A Strategic Framework for Small and Medium-sized Enterprises Dominik Saubke, Julia Christina Markert, Jens Peter Wulfsberg Helmut Schmidt University / University of | Simulation of Production and Supply Chains Location: Olive B Chair: Hyun Woo Jeon Chair: Eiji Morinaga 5:00pm - 5:20pm A Dynamic Milling Power Model Considering Tool Wear and Material Hardness with Simulated Applications Ga Hyun Lee ¹ , Byunghun Song ² , Hyun Woo Jeon ¹ 1: Kyung Hee University, Korea, Republic of (South Korea); 2: Autonomous Manufacturing Research Center, Korea Electronics Technology Institute, Seongnam-si, Gyeonggi-do, Republic of Korea 5:20pm - 5:40pm Scenario-Based Simulation for Developing New Production Systems: A Methodological Framework Akshay Goyal ^{1,2} , Ömer Faruk Acar ² , Yuji | Meet the Editors - Part 2 Location: Shichirigahama 1 | Artificial Intelligence / Machine Learning in Manufacturing - Part 2 Location: Shichirigahama 2 Chair: Jonghun Woo Chair: Marcelo Tsuguio Okano 5:00pm - 5:20pm Bridging Traditional and Digital Quality Control: Mobile AI Inspection with YOLOv8 <u>Marcelo Tsuguio Okano</u> , William Aparecido Celestino Lopes, Sérgio Miele Ruggero Paulista University - UNIP, Brazil 5:20pm - 5:40pm Reinforcement Learning-Based Algorithm for Optimizing Marking Sequences in Nesting Drawings Heechang Yoon ¹ , Youngin Cho ¹ , Sookyong Son ^{1,2} , Jonghun Woo ^{1,3} 1: Department of Naval Architecture and Ocean Engineering, Seoul | |

APMS 2025 Conference Program (tentative)

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| | networks through disruption simulation Benedict Carl Janssen, Günther Schuh, Seth Schmitz, Alexander Schollemann | Zahn, Eugen Rodel, Shaun West 5:40pm - 6:00pm A Battery Circularity Decision Support Framework for Sustainable Transport Applications Anas Fattouh, Erik Dahlquis, Koteswar Chirumalla | the Federal Armed Forces Hamburg, Germany 5:40pm - 6:00pm Only What's Needed: Frugal Smart Systems for Resilience in Manufacturing Alessia Napoleone¹, Rafael L. Patrao¹, Max Mooij¹, Rasmus Andersen², Ann-Louise Andersen² 1: Delft University of Technology; 2: Aalborg University | Yamamoto¹, Ioanna Aslanidou¹ 1: Mälardalen University, Sweden; 2: Mälardalen Industrial Technology Center | National University, Seoul, 08826, Republic of Korea; 2: AI Center, HD Korea Shipbuilding and Offshore Engineering Co., Gyeonggi-do 13553, Repub-lic of Korea; 3: Research Institute of Marine Systems Engineering, Seoul National University, Seoul, 08826, Republic of Korea 5:40pm - 6:00pm Design-on-Graph: A graph retrieval-augmented generation-based method to support manufacturing system design Zelong Song¹, Yifan Tan¹, Jin Chen¹, Rebeca Arista², Xiaochen Zheng¹ 1: Southern University of Science and Technology, Shenzhen, 518055, China; 2: Airbus SAS, Blagnac, 31700, France | |
| 6:30pm - 9:00pm | Gala Dinner Location: Shichirigahama 3&5-7 | | | | | |

APMS 2025 Conference Program (tentative)

Date: Wednesday, 03/Sept/2025

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| 8:30am - 12:30pm | Applications of Artificial Intelligence in Supply Chain Management - Challenges and Opportunities Location: Shichirigahama 2 | | | | | |
| 9:00am - 10:20am | Maintenance and Asset Lifecycle Management for Sustainable and Human-centered Production - Part 1 Location: Rose A-B Chair: Jon Bokrantz Chair: Adalberto Polenghi 9:00am - 9:20am Addressing Requirements for Maintenance Performance Indicators During the Ramp-up of Battery Production <u>Oscar Larsson</u> , Camila Kin Márquez, Jon Bokrantz 9:20am - 9:40am Incorporating energy efficiency in the definition of maintenance strategy: bibliometric analysis and road mapping <u>Adalberto Polenghi</u> , Zeynab Allahkarami, Anderson Leal, Irene Roda, Anders Skoogh 9:40am - 10:00am Research Avenues for Maintenance Operations in Battery Production <u>Oscar Larsson</u> , Anders Skoogh, Jon Bokrantz 10:00am - 10:20am | Upgrade Circular Economy for the manufacturing industry - Part 1 Location: Olive A Chair: Regina Schrank Chair: Emrah Arica 9:00am - 9:20am Integrating product, process, and organization perspectives for building circular manufacturing systems <u>Emrah Arica</u> , Odd Myklebust 9:20am - 9:40am Design of production structures for circular production <u>Hendrik Eisbein</u> , Günther Schuh, Seth Schmitz, Calvin Kuhn 9:40am - 10:00am Information Requirements for Data-Driven Upgrade Engineering to Enable an Upgrade Circular Economy Florian Alexander Schuldt, Günther Schuh, Jan-Niklas Abels | Scheduling and Production Planning in Smart Manufacturing - Part 1 Location: Olive B Chair: Takashi Tanizaki Chair: Koji Iwamura 9:00am - 9:20am A Study on Integrated Production Management for Engineer-to-order Production: An Integer Programming Formulation for Flexible Medium-term Production Planning <u>Koji Iwamura</u> , Eiji Morinaga, Kengo Minami, Yoshiyuki Hirahara, Masamitsu Fukuda, Ayumu Niinuma, Hirotomo Oshima, Sumire Nishijima, Yasuo Namioka 9:20am - 9:40am Towards a Methodology for ML-based Decision-Making in Production Planning for Machinery and Plant Engineering <u>Laura Goebel</u> , Anna Schauer, Michael F. Zaeh 9:40am - 10:00am Transformer-Based Approach for Fitness Prediction in the Flexible Job Shop Scheduling Problem | Cloud and Collaborative Technologies Location: Shichirigahama 1 Chair: Marcelo Tsuguio Okano Chair: Georgios Zois 9:00am - 9:20am Enhancing Collaborative Cloud Computing Security: A Privacy by Design Approach with Homomorphic Encryption Samira Nascimento Antunes, <u>Marccelo Tsuguio Okano</u> Paulista University - UNIP, Brazil 9:20am - 9:40am Approaching Quality Management in Production Networks of Micro and Small Enterprises – Implications of Current Literature <u>Julia Christina Markert</u> , Dominik Saubke, Jens P. Wulfsberg Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Germany 9:40am - 10:00am Optimising a Manufacturing-as-a- | | Cyber-Physical System-Based Approaches to Achieve Sustainability Location: Shichirigahama 3 Chair: Wassim BOUAZZA Chair: Enrique Ruiz Zúñiga 9:00am - 9:20am Sustainability through Industry 4.0 Technologies: Discrete Event Simulation for Data-Driven Energy Management <u>Enrique Ruiz Zúñiga</u> , Gary Linnéusson, Martin Birtic, Carlos Alberto Barrera Diaz 9:20am - 9:40am Socially Sustainable Human-Robot Systems in Manufacturing and Logistics: A Content Analysis <u>Thilini Ranasinghe</u> , Eric Grosse 9:40am - 10:00am Forecast-Driven Reconfiguration in Sustainable Production Systems <u>Wassim BOUAZZA</u> , Anirut KANTASA-ARD 10:00am - 10:20am |

APMS 2025 Conference Program (tentative)

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| | <p>Extended Quality Control: Suppliers' Tooling Lifecycle Management Francisca Laranjo, Eusébio Nunes, Sérgio Sousa</p> | | <p>Shady Salama, Mate Kovacs, Guhan Elangovan</p> | <p>Service platform through mathematical modelling Angelos Ioannis Lagos¹, Ioannis Avgerinos¹, Georgios Zois¹, Ioannis Mourtos¹, Patricia Casla² 1: ELTRUN Research Lab, Athens University of Economics and Business, Greece; 2: Fundación Tekniker</p> | | <p>Integrating Sustainability with Equitable Operator Fatigue Distribution Wassim BOUAZZA, Yasamin ESLAMI, Jose Fernando JIMENEZ, Catherine DA CUNHA, Philippe CASTAGLIOLA</p> |
| | | | | <p>10:00am - 10:20am From Code to Production: A Quantitative Analysis of SaaS Characteristics for MaaS Development Fernanda Assef, Ann-Louise Andersen, Thomas Brunø, Kjeld Nielsen, Rasmus Andersen, Emma Worup Aalborg University, Denmark</p> | | |
| <p>10:40am - 12:00pm</p> | <p>Maintenance and Asset Lifecycle Management for Sustainable and Human-centered Production - Part 2 Location: Rose A-B Chair: Irene Roda Chair: Adalberto Polenghi</p> <p>10:40am - 11:00am Anomaly Detection in Wind Turbines Using Variational Autoencoders and Isolation Forest Guillermo Gil de Avalle Bellido, Christos Emmanouilidis</p> <p>11:00am - 11:20am</p> | <p>Upgrade Circular Economy for the manufacturing industry - Part 2 Location: Olive A Chair: Regina Schrank Chair: Tomiya Kimura</p> <p>10:40am - 11:00am Paradigm shift eco-effectiveness – toolmaking as the enabler of sustainable production Wolfgang Boos, Bernd Haase, Jonas Kenfenheuer, Thomas Eberius, Noah Amft</p> <p>11:00am - 11:20am Towards End-of-Life Management of</p> | <p>Scheduling and Production Planning in Smart Manufacturing - Part 2 Location: Olive B Chair: Koji Iwamura Chair: Takashi Tanizaki</p> <p>10:40am - 11:00am Multi-Objective Production Planning of Block Allocation in Shipyard Blasting Operations Ki-su Kim, Dongha Lee</p> <p>11:00am - 11:20am Field-Based Assessment of Key Influence Factors for Throughput Time</p> | <p>Experiential Learning in Engineering Education - Part 1 Location: Shichirigahama 1 Chair: Giovanni Romagnoli Chair: Matthias Kalverkamp</p> <p>10:40am - 11:00am Reflections on the usage of a COTS Game in Teaching Logistics Jakob A.H.D Baalsrud Hauge, Jannicke Baalsrud Hauge, Matthias Kalverkamp</p> <p>11:00am - 11:20am The Contribution of Cyber-Security for improving the Resilience of Supply Chains – The</p> | | <p>Industrial Data Spaces and Sustainability Location: Shichirigahama 3 Chair: Oliver Antons Chair: Wiesław Urban</p> <p>10:40am - 11:00am Manufacturing Network Topologies for Sustainable Production Oliver Antons, Julia C. Arlinghaus</p> <p>11:00am - 11:20am Experience-integrated Product Family Formation using Clustering Algorithms</p> |

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| | <p>Lifecycle Extension of industrial assets: A framework for feasibility assessment and strategy selection <u>Sofia Zappa</u>, Irene Roda, Marco Macchi</p> <p>11:20am - 11:40am</p> <p>A Comprehensive Methodology for Assessing and Quantifying the Criticality of Component Obsolescence <u>R my HUITEL</u>, Yasamin ESLAMI, Catherine DA CUNHA, Olivier REMOND</p> | <p>Photovoltaic Panels with Life Extension Approaches: Reuse, Recondition and Recycle <u>Bahador Bahramimianrood</u>, Shiva Abdoli, Rong Deng</p> <p>11:20am - 11:40am</p> <p>The impact of environmental taxes and other factors on the ROI of introducing automated transport systems in factories <u>Tomiya Kimura</u>, Midori Sugihara</p> | <p>Prediction in Job Shop Manufacturing <u>Jonas Reinhold</u>, Alexander Rokoss, Matthias Schmidt Leibniz University Hannover, Germany</p> <p>11:20am - 11:40am</p> <p>Resilient workforce planning for MMALs with training and learning effects Carlos Miguel, Steven Hoedt, El-Houssaine Aghezzaf, Johannes Cottyn</p> | <p>Need of Employee Training <u>Jannicke Baalsrud Hauge</u>, Ioana A Stefan</p> <p>11:20am - 11:40am</p> <p>Suggestion and Evaluation of Unified Modeling Language Diagram Creation Tool using AR Technology <u>Kaoru Mitsuhashi</u>, Tomoaki Maruyama, Hiroshi Takeshita</p> | <p>Tobias Bein, Ulf Bergmann, Oliver Antons, Julia C. Arlinghaus</p> <p>11:20am - 11:40am</p> <p>PDCA perspective in energy management system according to ISO 50001 in the healthcare organization <u>Honorata Sierocka</u>, Wieslaw Urban</p> <p>11:40am - 12:00pm</p> <p>Data Spaces as Enablers of Digital Twin Ecosystems: Challenges and Requirements <u>Ana Carolina Chaves</u>, Ana Nunes Alonso, Ant nio Lucas Soares</p> | |
| <p>12:00pm - 1:10pm</p> | <p>Lunch Location: Shichirigahama 5-6</p> | | | | | |
| <p>1:10pm - 2:10pm</p> | | <p>Mechanism Design for Production, Service and Supply Chain Management - Part 1 Location: Olive A-B Chair: Ryuichiro Ishikawa Chair: Nariaki Nishino</p> <p>1:10pm - 1:30pm</p> <p>Matching Problems in Remanufactured Products for Product Service Systems in the Circular Economy Ayato Kitadai, Sinndy Dayana Rico Lugo, Nariaki Nishino</p> | | <p>Experiential Learning in Engineering Education - Part 2 Location: Shichirigahama 1 Chair: Jannicke Baalsrud Hauge Chair: Matthias Kalverkamp</p> <p>1:10pm - 1:30pm</p> <p>Gamification of Decision Making for Performance Management of Multi-Echelon Supply Chains Shrushti Madrikar, <u>Vittaldas V. Prabhu</u></p> <p>1:30pm - 1:50pm</p> | <p>Theoretical and Practical Advances in Human-Centric, Resilient, and Sustainable Supply Chain Management - Part 1 Location: Shichirigahama 2 Chair: Aya Ishigaki Chair: Ziang Liu</p> <p>1:10pm - 1:30pm</p> <p>Local Explanation Method for Ordering Policy in Perishable Inventory Management Problem Using LLM and LIME Kohei Toda, Tatsushi Nishi, Ziang Liu</p> | <p>Digital Technologies in Manufacturing and Logistics: Exploring Digital Twin, IoT, and Additive Manufacturing - Part 1 Location: Shichirigahama 3 Chair: Eiji Morinaga Chair: Toshitake Tateno</p> <p>1:10pm - 1:30pm</p> <p>Prediction of the Roundness error of cylindrical workpiece from chucking force using machine learning <u>Kengo Kawai</u>, Shota Suginouchi, Hajime Mizuyama</p> |

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| | | <p>1:30pm - 1:50pm</p> <p>Transformation of Many-to-One to One-to-One Matching Problems Through Replication</p> <p><u>Sangjic Lee</u>, Ayato Kitadai, Ye Cheng, Nariaki Nishino</p> | | <p>A Systematic Approach to Evaluate Player Experience in Project Management Serious Games</p> <p><u>Francesco Moroni</u>, Giovanni Romagnoli, Francesco Zammori</p> | <p>1:30pm - 1:50pm</p> <p>A Multi-Period Multi-Objective Model for Sustainable Supply Chain Optimization using MILP Framework</p> <p><u>Mst.Sumaya Akter</u>, Tatsushi Nishi, Ziang Liu</p> | <p>1:30pm - 1:50pm</p> <p>Process Parameter Adjustment in Extrusion-Based Additive Manufacturing with Vertical Articulated Robots</p> <p><u>Eito Ito</u>, Toshitake Tatenno</p> |
| | | <p>1:50pm - 2:10pm</p> <p>Concept of manufacturing control for a workstation with sequence-dependent setup times in a make-to-stock production</p> <p>Constantin Steffens, Christopher Mundt, Hermann Lödding</p> | | <p>1:50pm - 2:10pm</p> <p>Gamifying Project Management: Insights from the Titan Mall Serious Game</p> <p>Francesco Moroni, Giovanni Romagnoli, Francesco Zammori</p> | <p>1:50pm - 2:10pm</p> <p>A proposal for a closed-loop production planning method to deal with carbon emission reduction</p> <p>Araki Kawamura, Toshiya Kaihara, Daisuke Kokuryo, Houei Mizuhara, Toyohiro Umeda, Hideo Ikeda, Akihisa Horio</p> | <p>1:50pm - 2:10pm</p> <p>Modeling and Simulation of SBSRS-Based Goods-to-Person System</p> <p><u>Yuma Kiyono</u>, Shota Suginoouchi, Hajime Mizuyama</p> |
| <p>2:25pm - 3:45pm</p> | <p>Digital Track 1 Location: Rose A-B Chair: Eiji Morinaga</p> <p>2:25pm - 2:45pm</p> <p>A Human Digital Twin Approach to Physical Hazard Management in the Manufacturing Environment: An Extensive Literature Review with a Conceptual Framework</p> <p><u>Rojanat Vongchaisaree</u>, <u>Shiva Abdoli</u> University of New South Wales, Australia</p> | <p>Mechanism Design for Production, Service and Supply Chain Management - Part 2</p> <p>Location: Olive A-B Chair: Shota Suginoouchi Chair: Ryuichiro Ishikawa</p> <p>2:25pm - 2:45pm</p> <p>Capacity-Driven Decision Model for Impact Assessment of Product Variants in Factory Systems</p> <p><u>Mehmet Demir</u>, Tobias Kleinewächter, Matthias Schmidt</p> | | <p>Enhancing Value Chain Resilience through Digital Technologies</p> <p>Location: Shichirigahama 1 Chair: Thomas Brunø Chair: Kjeld Nielsen</p> <p>2:25pm - 2:45pm</p> <p>Value Chain Resilience in Production Networks of Micro and Small Enterprises</p> <p><u>Julia Christina Markert</u>, Aamir Waris, Stephanie von Riegen, Archit Sharma, Pascal Krenz, Lothar Hotz, Jens P. Wulfsberg</p> | <p>Theoretical and Practical Advances in Human-Centric, Resilient, and Sustainable Supply Chain Management - Part 2</p> <p>Location: Shichirigahama 2 Chair: Ziang Liu Chair: Aya Ishigaki</p> <p>2:25pm - 2:45pm</p> <p>Inventory Control Using a Lévy Process for Evaluating Total Costs under Intermittent Demand</p> <p>Ryoya Koide, Yurika Ono, Aya Ishigaki</p> | <p>Digital Technologies in Manufacturing and Logistics: Exploring Digital Twin, IoT, and Additive Manufacturing - Part 2</p> <p>Location: Shichirigahama 3 Chair: Tatsuhiko Sakaguchi Chair: Nestor Fabian Ayala</p> <p>2:25pm - 2:45pm</p> <p>Virtual Factories, Real-World Impact: Applying the Industrial Metaverse into the Manufacturing Process</p> <p>Viktoria Leutheuser, Julian M. Müller, Kai-Ingo Voigt</p> |
| | <p>2:45pm - 3:05pm</p> | <p>2:45pm - 3:05pm</p> | | <p>2:45pm - 3:05pm</p> | <p>2:45pm - 3:05pm</p> | <p>2:45pm - 3:05pm</p> |

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| | Digital Twin For Building Asset Management: Challenges And Opportunities Xiaolu Wang, <u>Shiva Abdoli</u> University of New South Wales, Australia | Optimal Strategy of Spot Sale and Presale in Dual Channel Food Supply Chain with Freshness and Carbon Emissions Satoshi Tazaki, Etsuko Kusakawa | | Serious Game to Promote Manufacturing as a Service Effect in Resilience of Supply Chain Borzoo Pourabdollahian, Margherita Emma Paolo Pero, Yasamin Eslami, Catherine Da Cunha | Predicting Mental Stress Induced by Interaction in Collaborative Order Picking Using Dynamic Bayesian Networks and Personality Traits of Worker <u>Yurika Ono</u>, Yuma Namiki, Seiko Taki, Aya Saito, Aya Ishigaki | Digital Twin, Digital Shadow or Digital Model? A Systematic Literature Review Pablo Gino Brarda, Gonzalo Fernandez, <u>Nestor Fabian Ayala</u> |
| | 3:05pm - 3:25pm Investigating Cloud-Edge-Fog Computing Configuration for Robotics Application in SMEs in Industry 4.0 Bhuvan Tulani, <u>Shiva Abdoli</u> University of New South Wales, Australia | 3:05pm - 3:25pm Optimal Collection Strategy in a Dual-Channel Green Closed-Loop Supply Chain with Social Responsibility and Consumer Preferences under Government Intervention Ren Koike, <u>Etsuko Kusakawa</u> | | 3:05pm - 3:25pm Capability-Based Classification of Resilience KPIs and Research Directions Fernanda Assef, Rasmus Andersen, Ann-Louise Andersen, Thomas Brunø, Kjeld Nielsen | 3:05pm - 3:25pm Efficiency Classification of Picking Methods in Warehouses Using Dynamic Programming Considering Temporary Storage and Picker Capacity Constraints <u>Fumikazu Hoyano</u>, Aya Ishigaki | 3:05pm - 3:25pm A new method for high-resolution frequency analysis in periodic burst noise environments Shugo Terasawa, Yukihiro Kamiya |
| | | 3:25pm - 3:45pm The Impact of Transshipment Prices on Food Waste in a Two-Location Restaurant Inventory System Takanori Ishimaru, Shota Suginoichi, Hajime Mizuyama | | 3:25pm - 3:45pm Measuring Agility and Resilience in Engineer-to-Order Contexts <u>Kunruthai Meechang</u>, Khaled Medini, Margherita Pero | 3:25pm - 3:45pm Designing Sustainable Blood Distribution Networks: A Simulation Approach from the Bergamo Province Case Study <u>Alexandra Lagorio</u>, Claudia Piffari | 3:25pm - 3:45pm Role of Additive Manufacturing and Data Space in Sustainable and Resilient Manufacturing Supply Chain <u>Yoshihiro Norikane</u>, Hidekazu Nishimura |
| 4:00pm - 5:00pm | Digital Track 2 Location: Rose A-B Chair: Eiji Morinaga 4:00pm - 4:20pm Ranking Big Data Analytics Micro-Foundations for the Resilience of Agri-Food | Mechanism Design for Production, Service and Supply Chain Management - Part 3 Location: Olive A-B Chair: Nariaki Nishino Chair: Ryuichiro Ishikawa 4:00pm - 4:20pm Enhancements and Evaluation of Meta- | | | Theoretical and Practical Advances in Human-Centric, Resilient, and Sustainable Supply Chain Management - Part 3 Location: Shichirigahama 2 Chair: Aya Ishigaki Chair: Ziang Liu 4:00pm - 4:20pm | Digital Technologies in Manufacturing and Logistics: Exploring Digital Twin, IoT, and Additive Manufacturing - Part 3 Location: Shichirigahama 3 Chair: Daisuke Kokuryo Chair: Marvin Carl May 4:00pm - 4:20pm |

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| | <p>Retailers: A Multi-criteria Decision-Analysis Study Alireza Asgari, Morteza Alaeddini, Paul Reaidy</p> <p>4:20pm - 4:40pm</p> <p>Distribution-Focused Clustering for Revealing Patterns in Container Logistics André Lima, Eugénio Rocha, Mara Madaleno, Pedro Macedo</p> <p>4:40pm - 5:00pm</p> <p>Attaining Environmental Sustainability through Product-Service Systems Practices: A Global Study Dragana Slavic, Giuditta Pezzotta, Selver Softic, Ugljesa Marjanovic, David Romero, Nenad Simeunovic, Slavko Rakic</p> | <p>Heuristic Scheduling Auction Using Genetic Algorithm <u>Genshin Okuni</u>, Shota Suginouchi, Hajime Mizuyama</p> <p>4:20pm - 4:40pm</p> <p>Modeling and Comparison of U.S. and Japanese Lettuce Supply Chain System Architecture Emmanuel Gonzalez, Paul Grogan, Deniz Karakoc, Hajime Mizuyama, Mizuho Sato, Shota Suginouchi, Mobin Zarreh</p> | | <p>Shorter and more agile supply chains in Industry 5.0: Case studies provide insights into manufacturing management theory. Atle M Christiansen., Kenn Steger-Jensen, <u>Kenneth Vidskjold</u></p> <p>4:20pm - 4:40pm</p> <p>Industry 5.0 – How to measure? Bjørnar Henriksen, Maria Kollberg Thomassen, Carl Christian Røstad</p> | <p>AI-Driven Multisensor Quality Inspection: A Focus on Robotic Wire Harness Assembly Annalena Hartmann, Zetong Liu, Simon Lamprecht, Patrick Bründl, Jörg Franke</p> <p>4:20pm - 4:40pm</p> <p>Optimization of Truck Loading and Delivery Routes Using an Environment-Adaptive Genetic Algorithm Tatsuhiko Sakaguchi, Yuki Nakadan</p> <p>4:40pm - 5:00pm</p> <p>Large Language Models for heuristics to solve Aggregate Production Planning <u>Marvin Carl May</u>, Toshiya Kaihara</p> |
| 5:30pm - 6:00pm | <p>Closing Ceremony Location: Shichirigahama 1-2</p> | | | | |