

EcoDesign 2023 Detailed Program

Notes

OS = Organized Session

[A1-1], [P1-1], etc.: Paper IDs in the Proceedings

[E]: Included in the E-book published by Springer after the symposium

Presenting authors are marked with *.

Wednesday, November 29, 2023

8:30-9:20	Registration (Lobby)
9:20-9:50	Opening Session (Tempyo Hall)
9:50-10:40	Plenary Keynote 1 (Tempyo Hall) Eco-design for Stabilizing Global Warming Well Under 2C <i>Diana Ürge-Vorsatz Vice Chair of IPCC</i>
10:40-11:00	Coffee (Lobby)

Wednesday, November 29, 2023

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A1] Product Lifecycle Design	[B1] OS: Environmental Performance's Definition for Complex Systems	[C1] Metrics for Circular Economy	[D1] Lifestyle, Fashion and Art	[E1] Smart Housing
	Chair: Despeisse, Mélanie (Chalmers University of Technology, Sweden)	Chair: Laratte, Bertrand (Arts et Métiers Institute of Technology, France)	Chair: Matsumoto, Mitsutaka (National Institute of Advanced Industrial Science and Technology, Japan)	Chair: Sakao, Tomohiko (Linköping University, Sweden)	Chair: Chen, Jahau L. (National Cheng Kung University, Taiwan)
11:00-12:20	[A1-1][E] Development of a Knowledge Repository Model for Conflict Management in Life Cycle Design Collaborations *Jing Tao (1), Yingyu Chen (1), Rujing Wu (2), Suiran Yu (2), Haiwei Zhou (1), (1.Shanghai University, China, 2.Shanghai Jiao Tong University, China, 3.PISX Shanghai Pairui Information Technology Co., Ltd., China)	[B1-1] A Design Method for Eco-Friendly Modules Generated via Topology Optimization *Tatsuhito Yoshida (1), Takayuki Yamada (1) (1.The University of Tokyo, Japan)	[C1-1][E]Life Cycle Assessment and Circularity Indicator Application in Environmental Assessment of End-of-Life Treatment Technologies – Case Study: EoL Steel Wire Rope *Anh Paige Thi Van Nguyen (1), Aapo Räsänen (1), Mika Horttanainen (2), Mariam Abdulkareem (2) (1.Konecranes Global Corporation, Finland, 2.Lappeenranta-Lahti University of Technology, Finland)	[D1-1][E] Exploring Suitable Growing Parameters of Mycelium Prototyping for Art Installations. *Tarteel Khaled Abdelsadek (1), Kazutoshi Tsuda (1) (1.Kyoto Institute Of technology, Japan)	[E1-1][E] Evaluation of Heatstroke Risk, Environmental Impact, and Cost of Hydrocarbon Refrigerant (GF-08) Air Conditioning Use in Residential Homes Integrated with Combined Photovoltaic Power Generation and Battery Storage *Taishi Okeya (1), Shan Miao (1), Kiyoshi Dowaki (1) (1.Tokyo University of Science, Japan)
	[A1-2][E] Urban Conscious Product Design Integrating a Life Cycle Perspective *Sina Rudolf (1), Marius Dellbrügge (2), Max Juraschek (1), Mark Mennenga (1), Uwe Clausen (2), Christoph Herrmann (1), (1. Technische Universität Braunschweig, Germany, 2. Technische Universität Dortmund, Germany)	[B1-2] Design of Life Cycle Assessment Method for Emerging Technologies Considering Technology Readiness Level *Katsuyuki Nakano (1) (1.Ritsumeikan University, Japan)	[C1-2][E]Towards a Sustainable Decision Framework with Harmonized Metrics for Circularity and Life Cycle Assessment in Manufacturing Nils Weiher (1), Janine Mügge (1), Inka Hahn (1), *Theresa Riedelshheimer (1), Kai Lindow (1) (1.Fraunhofer Institute for Production Systems and Design Technology (IPK), Germany)	[D1-2] From Circular Design to Circular Economy: A Possibility for Fashion Industry in Thailand *Jirapan Wongtongsanguan (1) (1.Chulalongkorn University, Thailand)	[E1-2] Optimal Residential Energy Use Scheduling with Time-of-Use Electricity Rates Considering Users' Comfort and Cost *Li-Hsing Shih (1), Tzu-hsun Yen (1) (1. National Cheng Kung University, Taiwan)
	[A1-3] Design Support System for Product Architecture Considering Multi-Generational Use *Kenichiro Kamimura (1), Yuki Komatsu (1), Kentaro Fujiwara (1), Shuho Yamada (2), Masato Inoue (2) (1.Meiji University, Japan, 2.Toyama prefectural University, Japan)	[B1-3][E] Proposal and Performance Evaluation of a Fuel Consumption System for H-Bikes, Considering the Shared-Cycle-Use Phase *Ryuta Nagado (1), Satoshi Sakai (1), Tomoya Ezawa (1), Koya Honda (1), Masami Sumita(1), Noboru Katayama (1), Shan Miao (1), Kiyoshi Dowaki (1) (1.Tokyo University of Science, Japan)	[C1-3] Material, Value and Money in Circular Economy *Hidetaka Hayashi (1) (1.EcoDesign Promotion Network, Japan)	[D1-3] GHG Emission Reductions of Winter Clothing Combinations *Toshiro Semba (1), Atsushi Inaba (2), Ryuzo Furukawa (3), Norihiro Itsubo (4) (1.National Institute of Technology, Tokyo College, Japan, 2.Japan Life Cycle Assessment Facilitation Centre, Japan, 3.Tokyo City University, Japan, 4.Waseda University, Japan)	[E1-3][E] Airflow Heat and CO2 Balance in Detached Houses: A Simulation Based on Insulation Leakage, Ventilation, and Occupancy of an Indoor Environment *Yanghui Guo (1), Andante Hadi Pandyaswargo (1), Hiroshi Onoda (1) (1.Waseda University, Japan)
		[B1-4][E] Methodology to Model the Environmental Impact of the Overall Maintenance of Aircraft Engines *Michel Nocture (1), Maud Lemagnen (1), Bertrand Laratte (2), Sarah Atroun (1) (1.Safran Aircraft Engines, France, 2.University of Bordeaux, France)	[C1-4] A Framework of Indicators for System Transition Toward Circular Economy and Policy Implication *Tomohiro Tasaki (1,2), Walter Jager (3) (1.National Institute for Environmental Studies, Japan, 2.World Resources Institute, USA, 3.ECD Compliance, Canada)	[D1-4][E] Cultural Practice for Sustainability: Narratives from Zero Waste Life Series by NHK World *Fatma Suhendan Eroglu (1), Betül Sahin (2) (1.Istanbul Technical University, Turkey, 2.Loughborough University, UK)	[E1-4][E] Repurposing Lithium-ion Batteries for the Household Context: A Case Study *Leander Pantelatos (1), Casper Boks (1), Elli Verhulst (1) (1.Norwegian University of Science and Technology, Norway)
12:20-13:20	Lunch (Room 201, 202, 203, 204, 205, 206)				

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A2] OS: Design Insight for ECD	[B2] Environmental and Social Impact Analysis (1)	[C2] OS: At the Cutting Edge of the Circular Economy – Results from Mistra REES (2015 – 2023), one of the largest CE-focused research programs in the Nordics	[D2] Disassembly and Recycling	[E2] OS: Future Design – Designing Social Systems to Incorporate the Preferences of Future Generations (1)
	Chair: Namikawa, Osamu (Hitachi, Ltd., Japan)	Chair: Hu, Allen H. (National Taipei University of Technology, Taiwan)	Chair: Matschewsky, Johannes (Linköping University, Sweden)	Chair: Amasawa, Eri (The University of Tokyo, Japan)	Chair: Hara, Keishiro (Osaka University, Japan)
	[A2-1] Development of “Design Insight System” for Environmentally Conscious Design *Yuki Shimizu (1), Erika Katayama (1), Yuki Itabayashi (1), Tatsuya Hasebe (1) (1.Hitachi,Ltd. Research & Development Group, Japan)	[B2-1] Assessing Corporate Climate Leadership in Taiwan’s Retailers Sector by Adopting the Concept of Sustainability Leadership *Li-Yun CHENG (1), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan)	[C2-1][E] Is It Possible to Reduce the Number of Today’s Thermoplastics? – An Investigation of the Swedish Plastic Industry *Mattias Lindahl (1), Ellen Lundin (1), Rajni Hatti-Kaul (2), Erik Sundin (1) (1.Linköping University, Sweden, 2.Lund University, Sweden)	[D2-1] Study on Separation of Positive Electrode Active Materials from Cathode in Lithium-Ion Batteries by Electrical Pulsed-Discharge Method *Moe Nakahara (1), Taketoshi Koita (1), Katsuya Teshima (2), Kazuyuki Shishino (3), Chiharu Tokoro (1,3) (1.Waseda University, Japan, 2.Shinshu University, Japan, 3.The University of Tokyo, Japan)	[E2-1] Digitalization of Backcasting Scenario Design: A Case of Toyama City, Japan *Taiki Yokota (1), Yusuke Kishita (1), Kazumasu Aoki (2) (1.The University of Tokyo, Japan, 2.University of Toyama, Japan)
13:20-14:40	[A2-2] Eco-design Towards Sustainable Manufacturing by Environmental Assessment Navigation *YounJeong Hong (1), Kenji Nishikawa (1), Yuki Murasato (1), Yuki Shimizu (1), Yoshiteru Katsumura (1) (1.Hitachi, Ltd., Japan)	[B2-2][E] Assessment of the Human Health Risk Derived from Chemicals in Export Products from Japan *Ryoma Kobayashi (1), Lisa Ito (1), Akihiro Tokai (1) (1.Osaka University, Japan)	[C2-2] Systemic Intervention - Key to Transformation Towards Circular Economy *Tomohiko Sakao (1) (1.Linköping University, Sweden)	[D2-2] Study on Separation of Metal Plates from Bonded Structure with Resin Adhesive Using Pulsed Discharge *Taketoshi Koita (1), Keita Sato (1), Takao Namihira (2), Chiharu Tokoro (1,3) (1.Waseda University, Japan, 2.Kumamoto University, Japan, 3.The University of Tokyo, Japan)	[E2-2] An Investigation of the Oversight Function of Future-Regarding Institutions *Masakazu Ogami (1), Tomohiro Tasaki (1) (1.National Institution for Environmental Studies, Japan)
	[A2-3] Proposal of a Method for Simulating the Behavior of Information System with Life Cycle Simulation in CE Business *tomoyuki tamura (1), Ryota Odagaki (1), Yasushi Umeda (1), Gaku Miyake (2), Genichiro Matsuda (2), Akio Tajima (3), Yusuke Kishita (1) (1.The University of Tokyo, Japan, 2.Panasonic Holdings Corporation, Japan, 3.Panasonic Environmental Technology Solutions, Japan)	[B2-3] Ecotoxicity Impact of Pesticide Use Focusing on Differences in Application Methods *Marika Muramoto (1), Longlong Tang (2), Norihiro Itsubo (3), Kentaro Iijima (1) (1.Tokyo City University, Japan, 2. National Agriculture and Food Research Organization, Japan, 3.Waseda University, Japan)	[C2-3][E] European Union Policy Developments Related to Ecodesign, Green Claims and Eco-Labeling: Implications for Voluntary Circular Labeling Initiatives *Carl Dalhammar (1), Karolina Vikingsson (2), Leonidas Miliotis (1) (1.Lund University, Sweden, 2.RI.SE, Sweden)	[D2-3] Multi-Image-Based Digital Representation of Disassembly Information for Wasted Products *Nao Yokokawa (1), Shinichi Fukushima (1), Takashi Michikawa (2) (1.Waseda University, Japan, 2.RIKEN Center for Advanced Photonics, Japan)	[E2-3] Time framing and SDGs: can imaginary future generations alter people’s perception and attitude? *Michinori Uwasu (1), Masashi Kuroda (2), Yukari Fuchigami (1), Keishiro Hara (1) (1. Osaka University, Japan, 2.Tokoha University, Japan)
	Discussion	[B2-4] Environmental and Social Impact Assessment Focusing on Mineral Resources in ICEV,HEV,BEV *Sayaka Kakiuchi (1), Selim Kakour (2), Chen Shuning (3), Norihiro Itsubo (1) (1.Waseda University, Japan, 2.Tokyo City University, Japan, 3.Kyushu University, Japan)	[C2-4] Challenges and Opportunities in Expanding to Product-Service Systems Toward Resource Decoupling *Johannes Matschewsky (1) (1. Linköping University, Sweden)	[D2-4][E] Thermal-Based Allocation Method for Multiple Co-Product Resource Consumption in Plastic Recycling: A Case Study in Malaysia Ming Hui Tan (1), *Meng Soon Chiong (1), Yoon-Young Chun (2), Invidiadoria Faian Ferolin (2), Kenichiro Tsukahara (2), Kiyotaka Tahara (2) (1.Universiti Teknologi Malaysia, Malaysia, 2.National Institute of Advanced Industrial Science and Technology, Japan)	Discussion
15:00-15:20	Coffee (Lobby)				

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A3] Collaboration for Sustainable Innovation	[B3] Environmental and Social Impact Analysis (2)		[D3] Sustainable Transportation	[E3] OS: Future Design – Designing Social Systems to Incorporate the Preferences of Future Generations (2)
	Chair: Nagasawa, Shinya (Waseda University, Japan)	Chair: Nakano, Katsuyuki (Ritsumeikan University, Japan)		Chair: Inoue, Masato (Meiji University, Japan)	Chair: Uwasu, Michinori (Osaka University, Japan)
	[A3-1] Examining the Interplay of Dynamic Capabilities, Stakeholder Integration Strategies, and External Pressures in Sustainable Product Innovation Performance: A Comparative Study of SMEs *Jouni K Juntunen (1), Khuram Shahzad (1) (1.University of Vaasa, Finland)	[B3-1] Evaluation of the Energy-Saving Performance, Comfort, and Environmental Impact of the Hydrocarbon Refrigerant GF-08 *Takuma Kanemura (1), Kengo Fujiwara (1), Shan Miao (1), Kiyoshi Dowaki (1) (1.Tokyo University of Science, Japan)		[D3-1][E] Evaluation of the "Shift" and Improve" Strategies in Achieving Sustainable Urban Transportation *Teuku Naraski Zahari (1), Benjamin McLellan (1) (1. Kyoto University, Japan)	[E3-1] Integrating Future Design into the Development of Model-Based Climate Services for Future Urban Planning Peter Hoffmann (1), *Yutaka Nomaguchi (2), Sabine Fritz (1), Jürgen Scheffran (3), Keishiro Hara (2) (1.Helmholtz Zentrum Hereon, Germany, 2.Osaka University, Japan, 3.University of Hamburg, Germany)
15:20-16:40	[A3-2][E] Information Needs for Establishing Circularity-Focused Collaborations Among Product Manufacturers and Recyclers *Giovanni Formentini (1), Rembrandt H.E.M. Koppelaar (2), Deborah Leone (6), Siro Dell'Ambrogio (6), Alessandro Fontana (6), Fabiana Guggiari (6), Tina Frangez (3), Slavko Dvoršak (3), Janez Matauš (4), Kristina Obu Vazner (4), Lucia Herrerias Martínez (5), Eniko Hajosi (5), Devarajan Ramanujan (1) (1.Aarhus University, Denmark, 2.EcoWise Ekodenge Ltd., UK, 3.Surovina d.o.o. Ul., Slovenia, 4.Gorenje, Slovenia, 5.WEEE-Forum, Belgium, 6.University of Applied Sciences and Arts of Southern Switzerland, Switzerland)	[B3-2] An Innovative Tool for Quantification Climate Mitigation Commitment-Temperature Rising Index for Pathways (TRIPs) Approach. *Lance Hongwei Huang (1), Allen H. Hu (1), Yao-Te Chen (3), Tse-Yang Teng (2), Chia-Wei Hsu (3), PI-TING Su (4), Yi-Hsi, Hsiung (4) (1.National Taipei University of Technology, Taiwan, 2.Sustain Vision consultant company, UK, 3.Tunghai University, Taiwan, 4.Common Wealth Magazine, Taiwan)		[D3-2][E] Facility Location Problem of Stationary and Mobile Hydrogen Refueling Stations Considering Transport Risk for Hydrogen *Jundai Koketsu (1), Aya Ishigaki (1) (1.Tokyo University of Science, Japan)	[E3-2][E] Analysis of the Effects of Adopting "Imaginary Future Generations" on the Design of Technology Development and Business Proposal - A Case Study of Workshop at a Plating Processing Company *Ken Fujita(1), Tetsusei Kurashiki (1), Keishiro Hara (1), Junji Ikeda (2), Takashi Nakamura (2) (1.Osaka University, Japan, 2. Teikoku-ion Co., Ltd, Japan)
	[A3-3][E] Exploring Participatory Approaches for Facilitating ESG Initiatives in Organizations *Kamila Kunrath (1), Devarajan Ramanujan (1) (1.Aarhus University, Denmark)	[B3-3] Environmental Benefits Evaluation of Tungsten Recycling Using the Anion Resin Technology *Yun Ho Choi (1), Yong Woo Hwang (2), Chun San Kim (1), Hong Yoon Kang (1), Hye Jeong Kang (1) (1.Inha University, Korea)		[D3-3] An Integrated Scenario Analysis of Electric Vehicle Considering Carbon Lock-in by Thermal Power *Ryusho Kitagawa (1), Yuji Toshihiro (1), Hidenori Murata (1), Hideki Kobayashi (1) (1.Osaka University, Japan)	[E3-3] Designing Research Strategies for Sustainable Supply Systems of Metals from the Perspective of "Imaginary Future Generations" – A Participatory Deliberation Experiment *Keishiro Hara (1), Takanobu Arai (1), Ziyi Liao (1), Naoki Ifuku (1), Masanori Suzuki (1) (1.Osaka University, Japan)
	[A3-4] Exploring Differing Perspectives on Sustainability and Corresponding Strategies in German Automotive Companies *Antonio Isopp (1), Marlon Philipp (1), Johannes Weyer (1) (1.TU Dortmund University, Germany)	[B3-4] A Framework for the Quantitative Evaluation of the Social Equity Impacts of 'Enabling' Innovation *Andrew John Chapman (1) (1.Kyushu University, Japan)		[D3-4] Product-Service System Simulation for the Transformation of the Mobility Industry Towards Circular Economy *Tomohiro Fukasawa (1), Shinichi Fukushige (1) (1.Waseda University, Japan)	Discussion
16:40-17:00	Coffee (Lobby)				
17:00-17:50	<p style="text-align: center;">Plenary Keynote 2 (Tempyo Hall) Balancing Architectural Works and Social Contributions <i>Shigeru Ban Architect</i></p>				
18:00-20:30	Welcome Reception (Room 203-204)				

8:30-9:10	Registration (Lobby)
9:10-10:00	Plenary Keynote 3 (Tempyo Hall) Technological Innovations for Sustainable Society <i>Masahiko Mori</i> President, DMG MORI CO., LTD.
10:00-10:20	Coffee (Lobby)

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A4] Sustainable Product Design (1)	[B4] Critical Materials and Material Flow	[C4] Sustainable Business Models	[D4] Reuse and Maintenance (1)	[E4] User Perception and Behavior (1)
	Chair: Nissen, Nils F. (Fraunhofer IZM, Germany)	Chair: Tokoro, Chiharu (Waseda University, Japan)	Chair: Dalhammar, Carl (Lund University, Sweden)	Chair: Takata, Shozo (Waseda University, Japan)	Chair: Mitake, Yuya (The University of Tokyo, Japan)
	[A4-1][E] A Discussion of the Thermal Management System for Metal Hydride Cartridges for H-Bike *Satoshi Sakai (1), Ryuta Nagado (1), Tomoya Ezawa (1), Koya Honda (1), Katayama Noboru (2), Shan Miao (1), Kiyoshi Dowaki (1) (1.Tokyo University of Science, Japan)	[B4-1] Materializing the Risks in Raw Material Supply by Fact-Based Analysis *Hiroki Hatayama (1), Shinsuke Murakami (2), Yurie Anzai (1) (1.National Institute of Advanced Industrial Science and Technology, Japan, 2.The University of Tokyo, Japan)	[C4-1] Architecture-Based Scenario Design Methodology for Digital Platform-Enabled Circular Economy Business: A Case Study of Smart Waste Management System *Masakuni Tsunezawa (1,2), Takamitsu Hirota (1,2), Yusuke Kishita (2), Kohei Sugiyama (1), Yasushi Umeda (2) (1.KDDI Research, Inc., Japan, 2.The University of Tokyo, Japan)	[D4-1] Promoting the Use of Reusable Containers for Food Delivery in Taiwan: A Feasibility Study *Yin-Tsu Peng (1), Hsin-Tien Lin (1), Eri Amasawa (2) (1.National Cheng Kung University, Taiwan, 2.The University of Tokyo, Japan)	[E4-1] Do Millennial Advocates of Sustainability Behave Sustainably? *Kenichiro Chinen (1), AiChinen (1) (1. California State University, Sacramento, USA)
	[A4-2] Smart Self-Sufficient Bus Stops with Cooling, Dehumidify, and Air Clean via Heat Pump System for Reducing the Urban Island Effect *Meng-Chieh Jeffrey Lee (1) (1.National Taichung University of Science and Technology, Taiwan)	[B4-2] Evaluation of the Impact of Mercury in Coal on Future Projections of Global and Life-Cycle Mercury Emissions Towards 2050 from Steel Production *Shunsuke Kashiwakura (1), Shoki Kosai (1), Eiji Yamasue (1) (1.Ritsumeikan University, Japan)	[C4-2] Business Model for Promoting Recycled Construction Aggregates in Taiwan *Yu-Wei LEE (1), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan)	[D4-2][E] A Study on Extracting Necessary Parameters for Expanding the Utilization Rate of Used Automobile Parts Based on Supply-Demand Analysis *Sosho Kitajima (1), Hiroshi Onoda (1) (1.Waseda University, Japan)	[E4-2][E] Circular Production Concepts in Southeast Asia: Cambodian Customer Perception of Remanufactured Motorcycle Parts Bob Nanthakorn (1), *Johan Vogt Duberg (2), Sok Seang (3), Jelena Kurilova-Palisaitiene (2), Erik Sundin (2), Mattias Lindahl (2), Ruth Banomyong (1) (1. Thammasat University, Thailand, 2. Linköping University, Sweden, 3. National University of Management, Cambodia)
10:20-12:00	[A4-3] Experiment for Design Optimization of Afforestation Tool by Taguchi Method *Yong-Zhi Cheng (1), Fa-Ming Hsieh (1), Hsiang-Tang Chang (1) (1.National Kaohsiung University of Science and Technology, Taiwan)	[B4-3] Resource Intensity Analysis of Plastics in Terms of Mining Activity *Taisuke Umesaki (1), Shoki Kosai (1), Shunsuke Kashiwakura (1), Eiji Yamasue (1) (1.Ritsumeikan University, Japan)	[C4-3] Developing a Planning Support Tool for Woody Biomass Energy Business: A Case Study of Japan *Yusuke Kishita (1), Daichi Takigawa (1), Noriaki Nakatsuka (2), Fumiteru Akamatsu (2) (1.The University of Tokyo, Japan, 2.Osaka University, Japan)	[D4-3] Repair Options in Terms of Product Value, Environmental Impact, and Cost for Automobile Users *Suki Ueda (1), Reo Sato (1), Mitsunobu Fujita (2), Takao Mori (3), Shuho Yamada (3), Akihiro Hayakawa (2), Rui Aoki (2), Masato Inoue (1) (1.Meiji University, Japan, 2.NGP Co., Ltd., Japan, 3.Toyama Prefectural University, Japan)	[E4-3] Beyond the Global North: Adopting a Global Perspective for Sustainable Consumption and Production *Tomohiko Sakao (1), Wisdom Kanda (1), John Laurence Esguerra (1), Anthony Shun Fung Chiu (2) (1.Linköping University, Sweden, 2.De La Salle University, Philippines)

<p>[A4-4][E] Applying Principles of Biological Transformation for Product Development and Manufacturing *Magda Berkhahn (1), Ina Peters (1), Rainer Stark (1) (1.Technische Universität Berlin, Germany)</p>	<p>[B4-4] Environmental Impacts and Supply Risks Associated with Next-Generation Batteries: A Study for Sodium- and Potassium-Ion Batteries *Ryosuke Yokoi (1), Riki Kataoka (1), Titus Masese (1), Vanessa Bach (2), Matthias Finkbeiner (2), Marcel Weil (3), Manuel Baumann (3), Masaharu Motoshita (1) (1.National Institute of Advanced Industrial Science and Technology, Japan, 2.Technical University of Berlin, Germany, 3.Karlsruhe Institute of Technology, Germany)</p>	<p>[C4-4] Evaluating the Effectiveness of Adapting Reusable Cup Rental System in Chain Stores by Policy and Different Promoting Strategies in Taiwan *Jia-Chun Qiu (1), Chia-Jung Lee (1), Greg Chih-Hsin Sheen (1), Hsin-Tien Lin (1) (1.National Cheng Kung University, Taiwan)</p>	<p>[D4-4] Constructing an Experiment with Response Surface Methodology to Develop a Tool for Maintenance of Afforestation *Fa-Ming Hsieh (1), Yong-Zhi Cheng (1), Hsiang-Tang Chang (1) (1.National Kaohsiung University of Science and Technology, Taiwan)</p>	<p>[E4-4][E] Factors Affecting Smart Technologies Social Acceptance: A Review Study *Andante Hadi Pandyaswargo (1), Meilinda Fitriani Nur Maghfiroh (2), Tanika Dewi Sofianti (3), Hiroshi Onoda (1) (1.Waseda University, Japan, 2.Universitas Islam Indonesia, Indonesia, 3.Swiss German University, Indonesia)</p>
<p>[A4-5][E] From Frugal Solutions to Reverse Innovation: A Knowledge-Based Perspective *Harald Ernst Otto (1) (1. Polytechnic University of Marche, Italy)</p>	<p>[B4-5] Gold Traceability in Artisanal and Small-Scale Gold Mining for the Mitigation of Supply Chain Risk *Shion Yamao (1), Shoki Kosai (1), Shunsuke Kashiwakura (1), Kenichi Nakajima (2), Eiji Yamasue (1) (1.Ritsumeikan University, Japan, 2.National Institute for Environmental Studies, Japan)</p>		<p>[D4-5] Development of Additive Manufacturing (AM) Repair Processes and Environmental Effect Evaluation *Mitsutaka Matsumoto (1), Shizuma Mitsuya (2), Yukito Minoshima (2), Naoko Sato (1), Harumichi Sato (1), Sharifu Ura (2) (1.National Institute of Advanced Industrial Science and Technology (AIST), Japan, 2.Kitami Institute of Technology, Japan)</p>	
<p>12:00-14:00</p>	<p>Lunch & Poster Session (Tempyo Hall Lobby)</p>			

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A5] Sustainable Product Design (2)	[B5] Sustainability Education for Future Generations	[C5] OS: Circular Economy Business (1) - Service-Oriented Business	[D5] Reuse and Maintenance (2)	[E5] User Perception and Behavior (2)
	Chair: Komoto, Hitoshi (National Institute of Advanced Industrial Science and Technology, Japan)	Chair: Otto, Harald E. (Polytechnic University of Marche, Italy)	Chair: Kishita, Yusuke (The University of Tokyo, Japan)	Chair: Kondoh, Shinsuke (The University of Tokyo, Japan)	Chair: Boks, Casper (Norwegian University of Science and Technology, Norway)
14:00-15:20	[A5-1] World's First Practical Use of Environmentally-Friendly Product with Bismuth-Based High Temperature Lead-Free Solder Material Paving the Way for the Realization of Fully Lead-Free Electronics for Circular Economy *Kenichiro Suetsugu (1), Kazuhiro Matsugi (1), Yasufumi Nakamura (2) (1. Hiroshima University, Japan, 2. K'mac Co., Ltd., Japan)	[B5-1][E] Climate Change and Disaster Risk Reduction Education in Primary Schools: A Case Study in Thua Thien Hue Province, Vietnam *Chau Mai Ngoc (1), Takaaki Kato (1), Fumitoshi Murae (1), Shiro Hori (2) (1. The University of Kitakyushu, Japan, 2. Japanese Standards Association, Japan)	[C5-1] Circular Business with Furniture and Home Appliances by CLAS *Hirotake Kubo (1) (1. CLAS Inc., Japan)	[D5-1][E] Unintended Consequences in the Transition to FMCG Reuse: "I Do Not Think I Ever Will Not" Use Single-Use Products *Catriona Tassell (1), Marco Aurisicchio (1) (1. Imperial College London, UK)	[E5-1][E] Enhancing Sustainable Behavior in Waste Management: A Social Perspective *Siti Khatijah Zamhari (1,2), Ahmad Fariz Mohamed (1), Azahan Awang (1) (1. Universiti Kebangsaan Malaysia, Malaysia, 2. Universiti Malaysia Sarawak, Malaysia)
	[A5-2] Carbon Reduction Methods, Strategies, and Assessment Tools of Green Design for Bicycle Products Jui-Che Tu (1), *PEI-CHI HUANG (1), SHI-CHEN LUO (1), HUEI-LING JHAO (2) (1. National Yunlin University of Science and Technology, Taiwan, 2. Cycling & Health Tech Industry R&D Center, Taiwan)	[B5-2][E] Design for Long-Term Reuse in Sustainable Design Education *Laure Herweyers (1), Lien De Schepper (1), Ingrid Moons (1), Els Du Bois (1) (1. University of Antwerp, Belgium)	[C5-2] Designing Service-Oriented Circular Economy Business Scenarios: A Case of Bike Sharing Business *Takumi Kodama (1), Koji Kimita (1), Eri Amasawa (1), Yusuke Kishita (1) (1. The University of Tokyo, Japan)	[D5-2][E] Analysis of Circular Economy Strategy Combined With Green Packaging Reuse Design for Sustainable Jewelry Development Yu-Chen Huang (1), *Tzu-Yun Chen (1) (1. National University of Kaohsiung, Taiwan)	[E5-2][E] Development of Office Indicators for Sustainable and Employee-Centric Workplace *Koyo Maekawa (1), Sayuri Nishikawa (1), Kozo Takase (1), Yuna Seo (1) (1. Tokyo University of Science, Japan)
	[A5-3] From G-Upcycle to Upcycle Circular Economy Certifications in Thailand: A Case of an Upcycled Product Design from Dialysis Solution Bags *Suphichaya Suppipat (1), Singh Intrachooto (2) (1. Chulalongkorn University, Thailand, 2. Kasetsart University, Thailand)	[B5-3][E] Changes in High School Students' Interest in Environmental and Social Issues as an Effect of Futurability Education *Shohei Nakamura (1), Katsutoshi Michihata (1), Kazuhito Wakamoto (1), Tetsusei Kurashiki (1) (1. Osaka University, Japan)	[C5-3] Environmental Potential of Clothing Rental Service Based on Consumer Voices and Behaviors *Eri Amasawa Amasawa (1), Koji Kimita (1) (1. The University of Tokyo, Japan)	[D5-3] The Role of Brick-and-Mortar Second-Hand Stores in the Circular Economy of EEE – Preliminary Findings in Japan and Germany *Christian Clemm (1), Mitsutaka Matsumoto (2), Yoon-Young Chun (2), Kenichiro Chinen (3) (1. The University of Tokyo, Japan, 2. National Institute of Advanced Industrial Science and Technology, Japan, 3. California State University, Sacramento, USA)	[E5-3] Impact of Smart Eating Habits on the Environmental Load: Evidence from Japan's Household Meal Survey Ayu Washizu (1), Sayaka Ita (2), *Yiyi Ju (1) (1. Waseda University, Japan, 2. Tohoku Gakuin University, Japan)
	[A5-4] A Study on the Reduction of Carbon Emissions of Display Modules Through the Application of Recycled Materials *Jewon Yang (1), Byungkwun Kang (1), Jungmin Lee (1), Changhyun Lim (1), Byunghee Choi (1), Yongchae Jung (1) (1. LG Display, Korea)	[B5-4][E] Challenges in Engineering Education for Sustainable Product Development – Insights from Practice *Lisa Hagedorn (1), Rainer Stark (1) (1. Technische Universität Berlin, Germany)	[C5-4] Swap Till You Drop – Circular Business Models and Their Implications *Claudia E Henninger (1) (1. The University of Manchester, UK)	[D5-4][E] Replacement of Manipulator Modules Based on Workload Using Part Agents *Arata Hori (1), Hiroyuki Hiraoka (1) (1. Chuo university, Japan)	[E5-4] The Study of Consumer's Visual Perception of Sustainable Package Design by Eye-Tracking Approach *Tseng-Ping Chiu (1), Yu-Ting Huang (1), Hsin-Tien Lin (1) (1. National Cheng Kung University, Taiwan)
15:20-15:40	Coffee (Lobby)				

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A6] OS: Intelligent Circular Manufacturing	[B6] Reframing of EcoDesign Research and Education	[C6] OS: Circular Economy Business (2) - Business Model Design	[D6] Sustainable Supply Chain Management	[E6] User Perception and Behavior (3)
	Chair: Assuad, Carla Susana A (Norwegian University of Science and Technology, Norway)	Chair: Umeda, Yasushi (The University of Tokyo, Japan)	Chair: Kimita, Koji (The University of Tokyo, Japan)	Chair: Yu, Suiran (Shanghai Jiao Tong University, China)	Chair: Sundin, Erik (Linköping University, Sweden)
	[A6-1][E] Reconfigurable Tooling for Circular Manufacturing: A Review Shivaprasad Cherukupally (1), *Venkata Reddy Nallagundla (1), Suryakumar S (1), Carla Susana A Assuad (2), Kristian Martinsen (3), Sverre Gulbrandsen-Dahl (3) (1.Indian Institute of Technology Hyderabad, India, 2.Norwegian University of Science and Technology, Norway, 3.SINTEF Manufacturing AS, Norway)	[B6-1] Reconsideration Referencing Biological Evolution of Functionally Graded Materials (FGMs), Ecomaterials and Intelligent Materials: Materials Science Literacy *Yoshikazu Shinohara (1) (1.National Institute for Materials Science, Japan)	[C6-1] CE Business Design Method Using Life Cycle Simulation Based on Pilot Studies *Gaku Miyake (1,2), Yusuke Kishita (2), Yasushi Umeda (2), Genichiro Matsuda (1), Akio Tajima (1) (1.Panasonic Holdings Corporation, Japan, 2.The University of Tokyo, Japan)	[D6-1] Using AHP and Packaging Specification Conversion for the Economic and Environmental Evaluation of Multi-Level Packaging Systems in a Supply Chain *Wu-Hsun Chung (1), Hao-Chu Yu (1), Wei-Chen Huang (1), Chung-Bo Liao (1) (1.National Taiwan Ocean University, Taiwan)	[E6-1][E] The Role of Shame and Guilt in Designing Anti-Littering Interventions June Kyong Trondsen (1), Casper Boks (1), Wanjun Chu (2),Babak Nemat (3), *Renee Wever (2) (1.Norwegian University of Science and Technology, Norway, 2.Linköping University, Sweden, 3.The University of Borås, Sweden)
15:40-17:00	[A6-2][E] Disjoining of Aluminium and Steel Weldings *Kristian Martinsen (1), Sverre Gulbrandsen Dahl (1), Mitsutaka Matsumoto (2), Kumar, S Surya (3) (1.SINTEF Manufacturing AS, Norway, 2.The National Institute of Advanced Industrial Science and Technology, Japan, 3.Indian Institute of Technology Hyderabad, India)	[B6-2] Scoping Good Papers for Organizations' Sustainability in Management and Engineering Research *Tomohiko Sakao (1), Cheryl Desha (2), Ilija Djekic (3), Claudio Favi (4), Olawale Emmanuel Olayide (5), Magdalena Ziolo (6), Jussi Kantola (7), María Jesús Muñoz-Torres (8), Ubiratã Tortato (9), Jordi Segalas (10), Krzysztof Urbaniec (11), Ernesto D. R. Santibanez-González (12), Maria Francesca Renzi (13), Stefan Seuring (14), Rodrigo Lozano (15) (1.Linköping University, Sweden, 2.Griffith University, Australia, 3.University of Belgrade, Serbia, 4.Universita' di Parma, Italia, 5.University of Ibadan, Nigeria, 6.University of Szczecin, Poland, 7.University of Turku, Finland, 8.Universitat Jaume I, Spain, 9.Pontifical Catholic University of Parana, Brazil, 10.Universitat Politècnica de Catalunya, Spain, 11.Warsaw University of Technology, Poland, 12.University of Talca, Chile, 13.University of Roma Tre, Italia, 14.University of Kassel, Germany, 15.University of Gävle, Sweden)	[C6-2] Three Perspectives of LCA for Business Models Innovation – Case Studies on Rental of Products *Lars Gunnar Furelid Tellnes (1,2), Gunnar Andersson (1), Anna-Lena Kjøniksen (1), Mirielle Torgersen (1,3) (1.Østfold University College, Norway, 2.Technical University of Cartagena, Spain, 3.Aarhus University, Denmark)	[D6-2][E] Quantifying Human Rights in Global Supply Chain (1): Socially-extended Input-Output Analysis (MRSEIO) *Shutaro Takeda (1), Takuya Shimamura (1), Nobumichi Shinohara (1), Misa Iwamoto (1), Daikichi Seki (1,2), Alexander Ryota Keeley (1,2), Shunsuke Managi (1,2) (1.Kyushu University, Japan, 2.aiESG, Inc, Japan)	[E6-2] The Effect of Design Extravagance on Consumers' Perceived Greenwashing: Case of Luxury vs. Affordable. *Felicia Caitlin (1), Ken Kumagai (2), Shin'ya Nagasawa (1) (1.Waseda University, Japan, 2.Mie University, Japan)

	<p>[A6-3] Impacts on SDG Achievement from Life Cycle Management of Electric Vehicles in Norway *Carla Susana Agudelo Assuad (1), Tomomi Kito (2), Shunichi Ohmori (2), Matteo Pedercini (3) (1.Norwegian University of Science and Technology, Norway, 2.Waseda University, Japan, 3.Millennium Insitute, USA)</p>	<p>[B6-3] Necessity of Environmental Literacy for Establishing the Sustainable Society Under the Formidable Situation of COVID-19, Climate Change and International Conflict *Makoto Kano (1) (1.Tokyo University of Science, Japan)</p>	<p>Panel Discussion Moderator: Koji Kimita Panelists: Hirotake Kubo, Eri Amasawa, Claudia Henninger, Lars Gunnar Furelid Telnes</p>	<p>[D6-3][E] Quantifying Human Rights in Global Supply Chain (2): Visualizing the UK's Electricity Sector *Misa Iwamoto (1), Takuya Shimamura (1), Nobumichi Shinohara (1), Alexander Ryota Keeley (1), Daikichi Seki (2), Shunsuke Managi (1), Shutaro Takeda (1) (1.Kyushu University, Japan, 2.aiESG Inc., Japan)</p>	<p>[E6-3] Communicating Sustainability: The Role of Sustainable Packaging Design in Promoting Eco-Friendly Behaviour *Kharisma Creativani (1,2), Jui-Che Tu (1) (1.National Yunlin University of Science and Technology, Taiwan, 2.Universitas Negeri Yogyakarta, Indonesia)</p>
	<p>[A6-4] Eco-Process Design for Metal Additive Manufacturing : Elucidation Through Case-Studies *Suryakumar Simhambhatla (1), Venkata Reddy Nallagundla (1), Mitsutaka Matsumoto (2), Carla Susana Assuad (3), Kristian Martinsen (4), Sverre Gulbrandsen Dahl (4) (1.Indian Institute of Technology Hyderabad (IITH), India, 2.National Institute of Advanced Industrial Science and Technology (AIST), Japan, 3.Norwegian University of Science and Technology (NTNU), Norway, 4.SINTEF, Norway)</p>	<p>[B6-4][E] Research Framework for Urban Industrial Symbiosis *Philipp Grimmel (1), Katja Knecht (2), Grace Abou Jaoude (1), Mark Mennenga (1), Olaf Mumm (1), Christoph Herrmann (1), Vanessa Miriam Carlow (1) (1.Technische Universität Braunschweig, Germany)</p>			<p>[E6-4] Consumer Readiness for Extended Producer Responsibility (EPR) for an Effective Circular Economy: Case Study of Plastic Bottle in Malaysia *Ahmad Fariz Mohamed (1), Khalilulnisha Abu Bakar (2), Yusuke Kishita (3) (1. Universiti Kebangsaan Malaysia, Malaysia, 2. Universiti Kebangsaan Malaysia, Malaysia, 3. The University of Tokyo, Japan)</p>
17:00-17:10	Short Break				

17:10-18:30	Bus Tour				
-------------	----------	--	--	--	--

19:00-21:30	Banquet (Hotel Nikko Nara)				
-------------	----------------------------	--	--	--	--

9:00-9:30	Registration (Lobby)
9:30-10:20	Plenary Keynote 4 (Tempyo Hall) Designing and Implementing Circular Business Models <i>Nancy Boeken Professor, Maastricht University</i>
10:20-10:40	Coffee (Lobby)

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A7] Digital Technologies for Sustainability	[B7] Life Cycle Sustainability Assessment (1)	[C7] OS: Circular Economy Business (3) - Battery	[D7] Remanufacturing	[E7] Strategies for Carbon Neutrality (1)
	Chair: Lindahl, Mattias (Linköping University, Sweden)	Chair: McLellan, Benjamin C. (Kyoto University, Japan)	Chair: Scheller, Christian (Technische Universität Braunschweig, Germany)	Chair: Hiraoka, Hiroyuki (Chuo University, Japan)	Chair: Mizuno, Yuji (The Institute of Applied Energy, Japan)
10:40-12:00	[A7-1][E] Factors Affecting Local Digital Transformation Toward the Sustainable Local Development *Takaharu Takikawa (1), Yuna Seo (1) (1.Tokyo University of Science, Japan)	[B7-1][E] Creating a Life Cycle Inventory Model for 5G Mobile Networks with 5C-Method *Lutz Stobbe (1), Nils F. Nissen (1), Nikolai Richter (2), Jan Druschke (1), Martin Schneider-Ramelow (2) (1. Fraunhofer Institute for Reliability and Microintegration, Germany, 2. Technical University Berlin, Germany)	[C7-1] Planning Support for Traction Battery Circular Business: A Scenario-and-Simulation Approach *Rong Sun (1), Yusuke Kishita (1), Christian Scheller (2), Steffen Blömeke (2), Yasushi Umeda (1), Thomas Spengler (2), Christoph Herrmann (2) (1.The University of Tokyo, Japan, 2.Technische Universität Braunschweig, Germany)	[D7-1][E] Environmental Evaluation of Remanufactured Automotive Parts – A Consistent Assessment of a Collection of Products *Annelie Carlson (1), Sofia Dahlgren (1), Erik Sundin (1) (1.Linköping University, Sweden)	[E7-1] Sustainable and Net-Zero Transitions of Taiwan's Optoelectronic Industry: Input-Output Analysis of Value-Chain Risks and Opportunities *Chon-Ip LONG (1), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan)
	[A7-2][E] Towards a Framework for Sustainable Cross-Border E-Commerce *Jiahe Chen (1), Yi-Chen Lan (1) (1.Western Sydney University, Australia)	[B7-2][E] An Environmental Process Design for H2S Removal Based on LCA Thinking Using CFD Modeling *Mayu Hamazaki (1), Shoichi Kumon (2), Kimitaka Sato (2), Shogo Kato (2), Kiyoshi Dowaki (1) (1.Tokyo University of Science, Japan, 2.DOWA Holdings Co., Ltd., Japan)	[C7-2][E] Model-Based Analysis of the Dynamic Capacity Ramp-Up of Closed-Loop Supply Chains for Lithium-Ion Batteries in Japan and Germany *Moritz Proff (1), Christian Scheller (1), Yusuke Kishita (2), Steffen Blömeke (1), Rong Sun (2), Mark Mennenga (1), Christoph Herrmann (1), Thomas Stefan Spengler (1) (1. Technische Universität Braunschweig, Germany, 2. The University of Tokyo, Japan)	[D7-2] Environmental Impact of Remanufacturing in Mining Machine *Tomohisa Kanazawa (1), Mitsutaka Matsumoto (2), Mitsuhiro Yoshimoto (1), Kiyotaka Tahara (2) (1.Hitachi Construction Machinery Co., Ltd., Japan, 2.National Institute of Advanced Industrial Science and Technology, Japan)	[E7-2] Net-Zero Transition Strategies for the Packaging of Cosmetics and Skincare Products *Yi-Hsuan Hung (1), Yuh-Ming Lee (1) (1.National Taipei University, Taiwan)
	[A7-3][E] Digital Twins for Real-Time Life Cycle Assessment of Products *Theresa Riedelsheimer (1), Anne Seegrün (1), Kai Lindow (1) (1.Fraunhofer IPK, Germany)	[B7-3][E] Comparison of Environmental Impacts of Body Wash Product in Life Cycle: Korea and Europe *Hanbi Kim (1), Noh-hyun Lim (1), Chankyu Lee (2) (1.IGSC Co., Ltd., Korea, 2.LG H&H Co., Ltd., Korea)	[C7-3][E] Second Life of Electric Vehicle Lithium-Ion Batteries from a Sustainable Business Model Perspective *Saad Ahmed (1), Elli Verhulst (1), Casper Boks (1) (1.Norwegian University of Science and Technology, Norway)	[D7-3] Improving Remanufacturing Processes by Reverse Engineering *Shizuma Mitsuya (1), Mitsutaka Matsumoto (2), Naoko Sato (2), Harumichi Sato (2), Sharifu Ura (1) (1.Kitami Institute of Technology, Japan, 2.National Institute of Advanced Industrial Science and Technology, Japan)	[E7-3][E] Energy Demand and Carbon Footprint of ICT in Germany until 2033 *Nils F. Nissen (1), Lutz Stobbe (1),Adelja Schulze (1), Conrad Philip Chisolm (1), Marina Proske (1), Marina Proske (1), Mathilde Billaud (1), Jan Druschke (1), Martin Schneider-Ramelow (2) (1. Fraunhofer Institute for Reliability and Microintegration, Germany, 2. Technical University Berlin, Germany)
	[A7-4] Digital Product Passports: A Key Towards the Circular Economy Transition – Data Requirements and Implications of Policy Coherence and Implementation. *Leonidas Milios (1), Mariana López Dávila (2) (1.Lund University, Sweden, 2.ECOS, Belgium)	[B7-4] Life Cycle Assessment for NCM Batteries with Hydrometallurgical Recycling Method in China Considering Evolution Battery Types *Wenjing Gong (1), Ichiro Daigo (1) (1.The University of Tokyo, Japan)	[C7-4][E] Environmental Impact Assessment of Battery Swapping Service for Electric Vehicles *Koki Yokoyama (1), Eri Amasawa (1), Masahiko Hirao (1) (1.The University of Tokyo, Japan)	[D7-4] Socio-Demographic Factors and Environmental Knowledge: Cases of Remanufactured Products in Japan *Ai Tiffany Chinen (1), Pingsheng Tong (2) (1. Waseda University, Japan, 2. California State University, Sacramento, USA)	[E7-4][E] Impact Assessment of Low-Carbon Electricity Transition by Applying Input-Output Analysis: A Case Study of the Impacts on Natural Gas Power Plants in Taiwan *Ping-Hung CHEN (1), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan)
12:00-13:00	Lunch (Room 201, 202, 203, 204, 205, 206)				

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A8] Waste Management	[B8] Life Cycle Sustainability Assessment (2)	[C8] Food & Agriculture (1)	[D8] Sustainable Manufacturing (1)	[E8] Strategies for Carbon Neutrality (2)
	Chair: Kano, Makoto (Tokyo University of Science, Japan)	Chair: Bach, Vanessa (Technische Universität Berlin, Germany)	Chair: Tsuda, Kazutoshi (Kyoto Institute of Technology, Japan)	Chair: Kashiwakura, Shunsuke (Ritsumeikan University, Japan)	Chair: Nomaguchi, Yutaka (Osaka University, Japan)
	[A8-1][E] Material Flow Analysis for the Biomass Waste Management of Palm Oil Mills with Regard to Sustainable Palm Oil Production *Ahmad Fariz Mohamed (1), Noor Azimah Darus (1,2), Nor Diana Mohd Idris (1) (1.Universiti Kebangsaan Malaysia, Malaysia, 2.Universiti Teknologi MARA, Malaysia)	[B8-1][E] Automation Approach for Life Cycle Assessment Integrated Data and Mapping Quality Assessment *Daniel Wehner (1), Michael Held (1), Sun Hea Hong (2) (1.Fraunhofer IBP, Germany, 2.University of Stuttgart, Germany)	[C8-1][E] Food and Nutrition Security Toward Sustainable Food Chain in Japan *Ryota Mori (1), Riku Uemura (1), Yuna Seo (1) (1.Tokyo University of Science, Japan)	[D8-1][E] Exploring Factory Data for Resource Efficiency Assessment - A Case Study at Truck Manufacturing Company *Qi Fang (1), Mélanie Despeisse (1) (1.Chalmers University of Technology, Sweden)	[E8-1] Management and Net-Zero Strategies for Carbon Sink Development of Non-CO2 Greenhouse Gases in Taiwan's Agricultural Sector *Pei-Jyun HUANG (1), Yuh-Ming Lee (1) (1.National Taipei University, Taiwan)
	[A8-2][E] How Should AI Technique Support Wastewater Treatment and Sludge Management? A Case Study from Mongolia *Richao Cong (1), Tumurtogtokh Oyunchimeg (1), Atsushi Fujiyama (1), Toru Matsumoto (1) (1.University of Kitakyushu, Japan)	[B8-2] Auxiliary ESD Study and LCA Considering Degradation of Polymer Electrolyte Fuel Cell System for Small Ground Mobility *Tomoya Ezawa (1), Ryuta Nagado (1), Satoshi Sakai (1), Kota Honda (1), Shan Miao (1), Noboru Katayama (1), Kiyoshi Dowaki (1) (1. Tokyo University of Science, Japan)	[C8-2] Development of a Closed-Type Plant Factory for Root Vegetables and Its Trial Cultivation *Katsuya TAKASAKI (1), Takayoshi KIMURA (2), Ayaka TSUTSUMIUCHI (3), Keiji SONODA (2), Kazuki TAKENOUCI (4) (1.AGL Inc., USA, 2.Happy Science University, Japan, 3.FGK Inc., Japan, 4.Kyushu University, Japan)	[D8-2][E] Exploring the Current Applications and Potential of Extended Reality for Environmental Sustainability in Manufacturing *Huizhong Cao (1), Mélanie Despeisse (1), Björn Johansson (1) (1.Chalmers University of Technology, Sweden)	[E8-2] Offsetting the Incremental Greenhouse Gas Emission from Development Projects under the Regulations of Environmental Impact Assessment Review *Wei-Cheng CHIANG (1,2), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan, 2.Taipei City Government, Taiwan)
13:00-14:20	[A8-3] Geospatial Analysis and Evaluation of Health Impacts Due to Exposure to Waste Dumpsites: A Case Study of Kinshasa City *Yllah Kang Okin (1), Yabar Helmut (1), Takeshi Mizunoya (1), Yoshiro Higano (1) (1.Tsukuba University, Japan)	[B8-3] Life Cycle Sustainability Assessment of Seawater Desalination Developments in Taiwan *Shan-Ho Tsai (1), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan)	[C8-3] Carbon Footprint of Alternative Meat: A Comparative Study on Plant-based and Conventional Meat *Nichole Eunice Yanson Lalas (1), Harlene Baron Cardoso (2), Atsushi Izumi (2), Koji Ochiai (2), Norihiro Itusbo (3), Hiroki Okubo (1) (1.Tokyo City University, Japan, 2.DAIZ Inc., Japan, 3.Waseda University, Japan)	[D8-3] Robotics and Automation Industry Roadmap: Thailand Perspectives *Nathasit Gerd Sri (1) (1.Mahidol University, Thailand)	[E8-3] An Integrated Approach to Measure Carbon Emission and Evaluate Preference for Low-Carbon Diet Selection *Hsiang-Tang Chang (1), Faming Hsieh (1), Yong-Zhi Cheng (1) (1.National Kaohsiung University of Science and Technology, Taiwan)
	[A8-4] Analysis of the Decisive Factors in the Circular Economy of Marine Debris Recycling and Reutilization *Chi-Chin HU (1), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan)	[B8-4] Developing A Tool for Assessing the Contribution of SDG 15 based on Life Cycle Assessment- A Case Study of the Electric Vehicle Industry in Taiwan *Chien Hung Kuo (1), Lance HongWei Huang (1), Allen H. Hu (1) (1.National Taipei University of Technology, Taiwan)	[C8-4] Drivers of Redistribution Surplus Food for Sustainable Consumption and Production: Environment and Community Concern *SAIDATUL AKMA HAMIK (1,2), Ahmad Fariz Mohamed (1) (1.Universiti Kebangsaan Malaysia, Malaysia, 2.Universiti Teknologi MARA, Malaysia)	[D8-4][E] An Analysis Method Considering Manufacturing Skills and Technologies Toward Slow-Manufacturing *Yuta Irino (1), Hidenori Murata (1), Hideki Kobayashi (1), Giampaolo Campana (2) (1.Osaka University, Japan, 2.University of Bologna, Italy)	[E8-4][E] Quantifying the Carbon Saving Potential of Two Sensor-based Smart City Services Regarding Street Lighting and Waste Management *Jan Druschke (1), Stephan Fath (2), Lutz Stobbe (1), Nils F. Nissen (1), Nikolai Richter (1), Maximilian Quaeck (1), Maximilian Fahland (1), Martin Schneider-Ramelow (1, 3) (1. Fraunhofer Institute for Reliability and Microintegration IZM, Germany, 2. Deutsche Telekom AG, Germany, 3. Technische Universität Berlin, Germany)
14:20-14:40	Coffee (Lobby)				

	Room A (201)	Room B (202)	Room C (203)	Room D (205)	Room E (206)
	[A9] Environmental Policy and Ecolabelling	[B9] Life Cycle Sustainability Assessment (3)	[C9] Food & Agriculture (2)	[D9] Sustainable Manufacturing (2)	[E9] Sustainable Systems Design
	Chair: Mohamed, Ahmad Fariz (National University of Malaysia, Malaysia)	Chair: Lee, Yuh-Ming (National Taipei University, Taiwan)	Chair: Nonaka, Tomomi (Waseda University, Japan)	Chair: Nallagundla, Venkata Reddy (Indian Institute of Technology, Hyderabad, India)	Chair: Dowaki, Kiyoshi (Tokyo University of Science, Japan)
14:40-16:00	[A9-1][E] Plastic Packaging Policy in Malaysia: An Analysis Towards the Implementation of Extended Producer Responsibility (EPR) *Khalilulnisha Abu Bakar (1), Ahmad Fariz Mohamed (1), Yusuke Kishita (2) (1. National University of Malaysia, Malaysia, 2. The University of Tokyo, Japan)	[B9-1][E] The Development of Land Use-based High-Resolution Spatial Global Biodiversity Damage Factors in LCIA *Runya Liu (1), Haruka Ohashi (2), Akiko Hirata (2), Tetsuya Matsui (2), Ryuzo Furukawa (1), Norihiro Itsubo (3) (1.Tokyo City University, Japan, 2.Forestry and Forest Products Research Institute, Japan, 3.Waseda University, Japan)	[C9-1] Promoting the Use of Discarded Dry Cashew Apples from Cambodia *Kenya Yamate (1), Ataru Takechi (1), Takuya Akao (1), Tuy savong (1), Hiroyuki Tsujii (1), Takaaki Kato (1) (1.The University of Kitakyushu, Japan)	[D9-1] Cost Projection of Alkaline and PEM Electrolyzers for Green Hydrogen Production *Moe Thiri Zun (1), Benjamin Craig McLellan (1) (1.Kyoto University, Japan)	[E9-1] Conceptualization of Digital Service System in Smart Cities *Yuya Mitake (1), Fumiya Akasaka (2), Kentaro Watanabe (2), Yuri Nishikawa (2), Jun Ozawa (2) (1.The University of Tokyo, Japan, 2.National Institute of Advanced Industrial Science and Technology, Japan)
	[A9-2][E] Designing Labels with a Lasting Impact: How Eco-labels Influence Purchase Behavior and Lifetime Extension of Clothing *Marie Das (1), Gabriela Dias (1,2), Leene Remeysen (1), Els Du Bois (1), Ingrid Moons (1) (1.University of Antwerp, Belgium, 2.University of São Paulo, Brazil)	[B9-2] Environmental Effect Analysis of Waste Plastics Reduction Policy Using Life Cycle Assessment - Focused on a Disposal cup and a Tumbler - *Seong Jin Cho (1), Young Hun Choi (1), Kook Pyo Pae (1), Da Yeon Kim (1), Geon Yong Kim (1), Yong Woo Hwang (1) (1.Inha University, Korea)	[C9-2] Sustainable Diet in a Highly Dense Population Setting: The Balance of Water Use and Nutrition Kamrul Islam (1), Ryosuke Yokoi (1), Amandine Valérie Pastor (2,3), *Masaharu Motoshita (1) (1.National Institute of Advanced Industrial Science and Technology, Japan, 2.ITAP, Univ Montpellier, INRAE, Institut Agro, Montpellier, France, 3.ELSA, Research Group for Environmental Lifecycle and Sustainability Assessment, France)	[D9-2] Digitizing Manufacturing Processes of Wooden Products for Sustainability *Yukito Minoshima (1), Mitsutaka Matsumoto (2), Sharifu Ura (1) (1.Kitami Institute of Technology, Japan, 2.National Institute of Advanced Industrial Science and Technology, Japan)	[E9-2] Focusing on Time Inconsistency for Sustainable Systems Design *Yuito Hisano (1), Yutaka Nomaguchi (1), Kikuo Fujita (1) (1.Osaka University, Japan)
	[A9-3][E] The Circular Economy: Towards a New Business Paradigm with Support from Public Policy *Mattias Lindahl (1), Carl Dalhammar (2) (1.Linköping University, Sweden, 2.Lund University, Sweden)	[B9-3][E] Implementing Simplified Life Cycle Assessments in Product Development Processes of Electrical and Electronics Equipment Markus Johansson (1), Jonatan Sars (1), Markus Gustafsson (1), *Erik Sundin (1) (1.Linköping University, Sweden)	[C9-3] Policy Appraisal and Sustainability Assessment of Renewable Energy Developments on Agricultural Land *Ling-Chuan HUANG (1), Yuh-Ming LEE (1) (1.National Taipei University, Taiwan)	[D9-3] Sensitivity Analysis of Consumables in Dry Machining *Maël Jeulin (1), Bertrand Laratte (1), Raynald Laheurte (1), Philippe Darnis (1), Olivier Cahuc (1), (1. Institut de Mécanique et d'Ingénierie de Bordeaux, France)	[E9-3] Optimization of Trash can Placement and Garbage Collection Routes Based on Human Flow and Behavioral Data *Mahiro Kawata (1), Shinichi Fukushige (1), Masakuni Thuneczawa (2), Kohei Sugiyama (2) (1.Waseda University, Japan, 2.KDDI Research, Inc., Japan)
		[B9-4][E] Trade-off Analysis between CO2 Reduction and Qaste Increase Associated with Solar Photovoltaic Installations *Shota Nogaki (1), Lisa Ito (1), Akihiro Tokai (1) (1.Osaka University, Japan)			
16:00-16:10	Short Break				
16:10-16:50	Award Ceremony & Closing Session (Room 204)				