PSE 2021+ KYOTO

# Program at glance

*as of 2 May 2022*

## Contents



| Japan Std. Time | Sunday, 19 June |
|---|---|
| | Main Hall |
| 15:00-20:00 | Registration |
| 17:00-18:30 | Christodoulos A. Floudas Distinguished Lectureship<br>sponsored by the Elsevier journal Computers & Chemical Engineering<br><br>Ignacio E. Grossman<br>*Optimal Synthesis and Planning of Sustainable Chemical Processes and Energy Systems* |
| 18:30-20:00 | Welcome Reception (at a different location) |

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# Program at glance

*as of 2 May 2022*

## Monday, 20 June

| Japan Std. Time | Main Hall | Hall I | Hall II | Hall III |
|---|---|---|---|---|
| 9:30-9:50 | Opening | | | |
| 09:50-10:40 | Plenary 1<br>Yoshihiko Hamamura<br>*Actions toward Carbon-Neutral Society with Fuel Cell Technology* | | | |
| 10:40-10:55 | Break | | | |
| 10:55-13:00 | Process and Product Design/ Synthesis (1)<br>11,12,13<br>(11:55-12:00 break)<br>14,15,16 | Process Dynamics and Control (1)<br>56,57,58<br>(11:55-12:00 break)<br>59,60,61 | Cyber-Physical Systems and Security<br>242,243,244<br>(11:55-12:00 break)<br>245,246,247 | Energy, Food and Environmental Systems (1)<br>308,309,310<br>(11:55-12:00 break)<br>311,312,313 |
| 13:00-14:00 | Lunch | | | |
| 14:00-15:30 | **On-site poster: 14:00-15:30 JST** and/or On-line poster: 22:30-23:30 JST<br>Process and Product Design/Synthesis<br>Process Dynamics and Control<br>Cyber-Physical Systems and Security<br>Energy, Food and Environmental Systems<br>31-55,69-74,248-251,333-353 (56) | | | |
| 15:30-15:40 | Break | | | |
| 15:40-16:20 | Keynote 1<br>Ruth Misener<br>*Optimization formulations for machine learning surrogates* | Keynote 2<br>Jongmin Lee<br>*Q-MPC: Integration of Reinforcement Learning and Model Predictive Control for Safe Learning* | | |
| 16:20-16:35 | Break | | | |
| 16:35-19:00 | Process and Product Design/ Synthesis (2)<br>17,18,19<br>(17:35-17:40 break)<br>20,21,22,23 | Process Dynamics and Control (2)<br>62,63,64<br>(17:35-17:40 break)<br>65,66,67,68 | Supply Chain Management and Logistics<br>91,92,93<br>(17:35-17:40 break)<br>94,95,96,97 | Energy, Food and Environmental Systems (2)<br>314,315,316<br>(17:35-17:40 break)<br>317,318,319,320 |
| 19:00-22:30 | Break | | | |
| 22:30-23:30 | On-site poster: 14:00-15:30 JST and/or **On-line poster: 22:30-23:30 JST**<br>Process and Product Design/Synthesis<br>Process Dynamics and Control<br>Cyber-Physical Systems and Security<br>Energy, Food and Environmental Systems<br>31-55,69-74,248-251,333-353 (56) | | | |

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# Program at glance

*as of 2 May 2022*

| Japan Std. Time | Tuesday, 21 June | | | |
|---|---|---|---|---|
| | Main Hall | Hall I | Hall II | Hall III |
| 6:00-7:00 | On-site poster: 14:00-15:30 JST and/or **On-line poster: 6:00-7:00 JST**<br>Machine Learning and Big Data<br>Scheduling and Planning<br>Supply Chain Management and Logistics<br>Process Intensification<br>Integration of Process Operations and Design/Synthesis<br>82-90,98-105,111-116,129-134,278-307 (59) | | | |
| 7:00-9:30 | Break | | | |
| 9:30-10:20 | Plenary 2<br>Rqfiqul Gani<br>*Challenges and Opportunities for Process Systems Engineering in a Changed World* | | | |
| 10:20-10:35 | Break | | | |
| 10:35-13:00 | Machine Learning and Big Data (1)<br>252,253,254<br>(11:35-11:40 break)<br>255,256,257,258 | Scheduling and Planning<br>75,76,77<br>(11:35-11:40 break)<br>78,79,80,81 | Process and Product Design/ Synthesis (3)<br>24,25,26<br>(11:35-11:40 break)<br>27,28,29,30 | Integration of Process Operations and Design/ Synthesis (1)<br>117,118,119<br>(11:35-11:40 break)<br>120,121,122,123 |
| 13:00-14:00 | Lunch | | | |
| 14:00-15:30 | **On-site poster: 14:00-15:30 JST** and/or On-line poster: 6:00-7:00 JST<br>Machine Learning and Big Data<br>Scheduling and Planning<br>Supply Chain Management and Logistics<br>Process Intensification<br>Integration of Process Operations and Design/Synthesis<br>82-90,98-105,111-116,129-134,278-307 (59) | | | |
| 15:30-15:40 | Break | | | |
| 15:40-17:20 | Machine Learning and Big Data (2)<br>259,260,261,262,263 | Process Intensification<br>106,107,108,109,110 | Energy, Food and Environmental Systems (3)<br>321,322,323,324,325 | Integration of Process Operations and Design/ Synthesis (2)<br>124,125,126,127,128 |
| | | | | |
| | Banquet (at a different location) | | | |

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# Program at glance

*as of 2 May 2022*

| Japan Std. Time | Wednesday, 22 June | | | |
|---|---|---|---|---|
| | Main Hall | Hall I | Hall II | Hall III |
| 9:30-10:20 | Plenary 3<br>Marianthi Ierapetritou<br>*PSE Tools and Challenges in the Development of Advanced Pharmaceutical Manufacturing* | | | |
| 10:20-10:35 | Break | | | |
| 10:35-13:00 | Pharma and Healthcare Systems (1)<br>354,355,356<br>(11:35-11:40 break)<br>357,358,359,360 | Machine Learning and Big Data (3)<br>264,265,266<br>(11:35-11:40 break)<br>267,268,269,270 | Modeling, Analysis and Simulation (1)<br>135,136,137<br>(11:35-11:40 break)<br>138,139,140,141 | Optimization Methods and Computational Tools (1)<br>188,189,190<br>(11:35-11:40 break)<br>191,192,193,194 |
| 13:00-14:00 | Lunch | | | |
| 14:00-15:30 | **On-site poster: 14:00-15:30 JST** and/or On-line poster: 22:30-23:30 JST<br>Pharma and Healthcare Systems<br>Process Monitoring and Safety<br>Modeling, Analysis and Simulation<br>Optimization Methods and Computational Tools<br>156-187,209-220,228-241,368-371 (62) | | | |
| 15:30-15:40 | Break | | | |
| 15:40-16:20 | Keynote 3<br>Hirokazu Sugiyama<br>*Pharma PSE: a multiscale approach for reimagining pharmaceutical manufacturing* | Keynote 4<br>Raghunathan Rengasamy<br>*Artificial Intelligence and Process Systems Engineering* | | |
| 16:20-16:35 | Break | | | |
| 16:35-19:00 | Pharma and Healthcare Systems (2)<br>361,362,363<br>(16:35-16:40 break)<br>364,365,366,367 | Process Monitoring and Safety<br>221,222,223<br>(16:35-16:40 break)<br>224,225,226,227 | Modeling, Analysis and Simulation (2)<br>142,143,144<br>(16:35-16:40 break)<br>145,146,147,148 | Optimization Methods and Computational Tools (2)<br>195,196,197<br>(16:35-16:40 break)<br>198,199,200,201 |
| 19:00-22:30 | Break | | | |
| 22:30-23:30 | On-site poster: 14:00-15:30 JST and/or **On-line poster: 22:30-23:30 JST**<br>Pharma and Healthcare Systems<br>Process Monitoring and Safety<br>Modeling, Analysis and Simulation<br>Optimization Methods and Computational Tools<br>156-187,209-220,228-241,368-371 (62) | | | |

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# Program at glance

*as of 2 May 2022*

| Japan Std. Time | Thursday, 23 June | | | |
|---|---|---|---|---|
| | Main Hall | Hall I | Hall II | Hall III |
| 9:30-10:10 | Keynote 5<br>Yasunori Kikuchi<br>*Application of PSE into social changes: biomassbased production, recycling systems, and regional systems design and assessment* | Keynote 6<br>Selen Cramchi<br>*Surrogate Modeling and Surrogate-Based Optimization with Stochastic Simulations* | | |
| 10:10-10:20 | Break | | | |
| 10:20-11:20 | Energy, Food and Environmental Systems (4)<br>326,327,328 | Modeling, Analysis and Simulation (3)<br>149,150,151 | Optimization Methods and Computational Tools (3)<br>202,203,204 | Machine Learning and Big Data (4)<br>271,272,273 |
| 11:20-12:20 | Lunch | | | |
| 12:20-13:40 | Energy, Food and Environmental Systems (5)<br>329,330,331,332 | Modeling, Analysis and Simulation (4)<br>152,153, 154, 155 | Optimization Methods and Computational Tools (4)<br>205,206,207,208 | Machine Learning and Big Data (5)<br>274,275,276,277 |
| 13:40-13:50 | Break | | | |
| 13:50-14:40 | Plenary 4<br>Iftekhar Karim<br>*Experience and Perspectives on our Journey towards Deep Decarbonization* | | | |
| 14:40-15:00 | Closing | | | |

| Session | # | Authors | Title |
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| Process and Product Design/ Synthesis (1) 11,12,13,14,15,16 | 11 | George Stephanopoulos, Bhavik Bakshi and George Basile | Reinventing the Chemical/Materials Company: Transitioning to a Sustainable Circular Enterprise |
| | 12 | Nikolaus I. Vollmer, Gürkan Sin and Krist Gernaey | Value Chain Optimization of a Xylitol Biorefinery with Delaunay Triangulation Regression Models |
| | 13 | Stefanie Kaiser and Sebastian Engell | Evaluating the Impact of Model Uncertainties in Superstructure Optimization to Reduce the Experimental Effort |
| | 14 | Wenlong Wang, Qilei Liu, Lei Zhang, Yachao Dong and Jian Du | Retrosynthesis Pathway Design Using Hybrid Reaction Templates and Group Contribution-Based Thermodynamic Models |
| | 15 | Chen Zhang, Clas Jacobson, Qi Zhang, Lorenz Biegler, John Eslick, Miguel A. Zamarripa, David Miller, Georgia Stinchfield, John Siirola and Carl Laird | Optimization-based Design of Product Families with Common Components |
| | 16 | Semie Kim and Young-il Lim | Economic evaluation and analysis of electricity and nano-porous silica productions from rice husk |
| Process Dynamics and Control (1) 56,57,58,59,60,61 | 56 | Sophie Sitter, Damien van de Berg, Max Max Mowbray, Antonio del Rio-Chanona and Panagiotis Petsagkourakis | Convex Q-learning: Reinforcement learning through convex programming |
| | 57 | Hyein Jung, Jong Woo Kim and Jong Min Lee | Differential dynamic programming approach for parameter dependent system control |
| | 58 | Masaharu Daiguji and Yoshiyuki Yamashita | Optimization of an air-cooler operation in an industrial distillation column |
| | 59 | San Dinh and Fernando Lima | Dynamic Operability Analysis for the Calculation of Transient Output Constraints of Linear Time-Invariant Systems |
| | 60 | Masanori Oshima, Sanghong Kim, Yuri Shardt and Ken-Ichiro Sotowa | Effective Re-identification of Multivariate Process under Model Predictive Control Using Information from Plant-Model Mismatch Detection |
| | 61 | Zhen-Feng Jiang, Xi-Zhan Wei, Jia-Lin Kang, David Shan-Hill Wong, Yuan Yao, Yao-Chen Chuang, Shi-Shang Jang and John Di-Yi Ou | Model Predictive Control of Grade Transition with Attention Base Sequence-to-Sequence Model |
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| | 243 | Toshiaki Honda, Takashi Hamaguchi and Yoshihiro Hashimoto | OPC UA information transfer via unidirectional data diode for ICS cyber security |
| | 244 | Takanori Miyoshi, Isao Kato, Shota Shimizu, Kanata Nishida and Masato Izawa | Study on Device Authentication System for Dynamic Zoning of Industrial Control Systems |
| | 245 | Yuitaka Ota, Haruna Asai, Shiho Taniuchi, Erika Mizuno, Tomomi Aoyama, Yoshiro Hashimoto and Ichiro Koshijima | Designing Framework for Tabletop Exercise to Promote Resilience Against Cyber Attacks |
| | 246 | Mohammed Aatif Shahab, Babji Srinivasan and Rajagopalan Srinivasan | Self-Organizing Map Based Approach for Assessment of Control Room Operator Training |
| | 247 | Yongbeom Shin, Jongyeon Oh, Dongkuk Jang and Dongil Shin | Digital Twin of Alkaline Water Electrolysis Systems for Green Hydrogen Production |

| Session | # | Authors | Title |
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| | 309 | Edgar Martin-Hernandez, Yicheng Hu, Victor M. Zavala, Mariano Martin and Gerardo J. Ruiz-Mercado | Promoting phosphorus recovery at livestock facilities in the Great Lakes region: Analysis of incentive policies |
| | 310 | Luis David Servian-Rivas, Ismael Diaz, Manuel Rodriguez, Emilio J. Gonzalez and Maria Gonzalez-Miquel | Production of ethanol, xylitol and antioxidants in a biorefinery from olive tree wastes: process economics, carbon footprint and water consumption |
| | 311 | Yasunori Kikuchi and Yuichiro Kanematsu | Application of CAPE Tools into Prospective Life Cycle Assessment: A Case Study in Acetylated Cellulose Nanofiber-Reinforced Plastics |
| | 312 | Wei-Han Chen and Fengqi You | Climate Control in Controlled Environment Agriculture Using Nonlinear MPC |
| | 313 | Jamileh Fouladi, Tareq Al-Ansari, Ahmed Alnouss and Yusuf Bicer | Thermodynamic analysis of an integrated renewable energy driven EWF nexus: a trade-off analysis of combined systems |
| Process and Product Design/ Synthesis (2) 17,18,19,20,21,22,23 | 17 | Juan-Manuel Restrepo-Florez and Christos T. Maravelias | Future biofuels: A Superstructure-based Optimization Framework Integrating Catalysis, Process Synthesis, and Fuel Properties |
| | 18 | Thien An Huynh, Vincent Reurslag, Maryam Raeisi, Meik B. Franke and Edwin Zondervan | Superstructure Optimization of Biodiesel Production from Continuous Stirred Tank and Membrane Reactors |
| | 19 | Jamie Rose and Thomas Adams | Process Design and Techno-Economic Analysis of Usage of Biomass Pyrolysis By-Products in the Ontario and Aichi Steel Industries |
| | 20 | Wanrong Wang, Jie Li and Nan Zhang | Optimal synthesis and design of solar-aided hydrogen production process using molten salt with integration of CO2 utilization |
| | 21 | Donghoi Kim, Zhongxuan Liu, Rahul Anantharaman, Luca Riboldi, Lars Odsæter, David Berstad, Thijs Peters, Jonathan Polfus, Harald Malerød-Fjeld and Truls Gundersen | Design of a novel hybrid clean hydrogen production process with membrane assisted CO2 capture through liquefaction |
| | 22 | Mohammad Lameh, Dhabia M. Al-Mohannadi and Patrick Linke | Analysis and design of integrated renewable energy and CO2 capture, utilization and storage systems for low cost emissions reduction |
| | 23 | Ali Al-Yaeeshi, Ahmed Alnouss and Tareq Al-Ansari | Techno-economic-environmental assessment for optimal utilisation of CO2 in the Fischer-Tropsch Gas-to-liquid Process |
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| | 63 | Yueyang Luo, Xinmin Zhang and Zhihuan Song | Self-triggered MPC for Perturbed Continuous-time Nonlinear Systems |
| | 64 | Anikesh Kumar, Lakshminarayan Samavedham, Iftekhar Karimi and Rajagopalan Srinivasan | A comparative study between MPC and selector-based PID control for an industrial heat exchanger |
| | 65 | Florian Joseph Baader, André Bardow and Manuel Dahmen | MILP Formulation for Dynamic Demand Response of Electrolyzers |

| Session | # | Authors | Title |
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| | 66 | Erik Esche, Christian Hoffmann, Joris Weigert and Jens-Uwe Repke | Real-Time Optimal Operation of a Chlor-Alkali Electrolysis Process under Demand Response |
| | 67 | Styliani Avraamidou, Iosif Pappas and Efstratios Pistikopoulos | Explicit Multi-Objective and Hierarchical Model Predictive Control |
| | 68 | Iosif Pappas, Nikolaos A. Diangelakis, Richard Oberdieck and Efstratios N. Pistikopoulos | A Robust Optimization Strategy for Robust Explicit Model Predictive Control |
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| | 92 | Amrita Sen, George Stephanopoulos and Bhavik Bakshi | Mapping Anthropogenic Carbon Mobilization through Chemical Process and Manufacturing Industries |
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| | 94 | Li Yu and Qiang Xu | A Novel Integrated Optimal Scheduling Framework for Holistic Refinery Supply Chain Management |
| | 95 | Adnan Al-Banna, Robert Franzoi, Brenno Menezes, Ahad Al-Enazi, Simon Rogers and Jeffrey Kelly | Roadmap to digital supply chain resilience |
| | 96 | Ken-Ichiro Sotowa | Development of Flexible Framework for Biomass Supply Chain Optimization |
| | 97 | Ariel Uribe-Rodriguez, Pedro M Castro, Gonzalo Guillen-Gosalbez and Benoit Chachuat | Lagrangean decomposition for integrated refinery – petrochemical short-term planning |
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| | 315 | Konstantin Matveev and Jacob Leachman | Thermoacoustic Flow-Through Cooler for Cryogenic Hydrogen |
| | 316 | Malik Sajawal Akhtar and Jay Liu | Life Cycle Assessment of Green Hydrogen Transportation ¥& Distribution Pathways |
| | 317 | Nicholas Salmon and René Bañares-Alcántara | Sector coupling of green ammonia production to Australia's electricity grid |
| | 318 | Shigeki Hasegawa, Shun Matsumoto, Yoshihiro Ikogi, Sanghong Kim, Miho Kageyama and Motoaki Kawase | Development of Muliti-purpose Dynamic Physical Model of Fuel Cell System |
| | 319 | Thomas Knight, Chao Chen and Aidong Yang | Embracing the era of renewable energy: model-based analysis of the role of operational flexibility in chemical production |
| | 320 | Cheng-Liang Chen, Jui-Yuan Lee and Kuan-Chen Chen | Hollow Fiber-based Rapid Temperature Swing Adsorption (RTSA) Process for Carbon Capture from Coal-fired Power Plants |

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| | 32 | Orakotch Padungwatanaroj, Nichakorn Kuprasertwong, Jakkraphat Kogncharoenkitkul, Kornkanok Udomwong, Anjan Tula and Rafiqul Gani | Fast, efficient and reliable problem solution through a new class of systematic and integrated computer aided tools |
| | 33 | Jia Wen Chong, Suchithra Thangalazhy-Gopakumar, Kasturi Muthoosamy and Nishanth Chemmangattuvalappil | Design of Bio-Oil Solvents using Multi-Stage Computer-Aided Molecular Design Tools |
| | 34 | J. Rafael Alcantara Avila, Maho Okunishi and Shinji Hasebe | Synthesis of azeotropic distillation processes without using a decanter |
| | 35 | Yutaka Yamada, Simone Genovese, Cal Depew, Ralph Cos, Hiroshi Kuwahara and Taiga Inoue | Reduce Environmental Impact and Carbon Footprint for Cost Competitive Process Plant Design: Integrating AVEVA Process Simulation with modeFRONTIER® |
| | 36 | Juin Yau Lim, Akos Orosz, Bing Shen How, Ferenc Friedler and Changkyoo Yoo | Reliability incorporated optimal process pathway selection for sustainable microalgae-based biorefinery system: P-graph approach |
| | 37 | Kensaku Matsunami, Sara Badr and Hirokazu Sugiyama | Framework for Designing Solid Drug Product Manufacturing Processes Based on Economic and Quality Assessment |
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| | 39 | Renanto Renanto, Sony Ardian Affandy, Adhi Kurniawan, Juwari Purwo Sutikno and Rendra Panca Anugraha | A Novel Process Synthesis of a Dehydrating Unit of Domestic Natural Gas Using TEG Contactor and TEG Regenerator |
| | 40 | Ishanki De Mel, Saif Kazi and Michael Short | A new trust-region approach for optimization of multi-period heat exchanger networks with detailed shell-and-tube heat exchanger designs |
| | 41 | Jui-Yuan Lee and Wilasinee Seesongkram | A Mathematical Technique for Utility Exchanger Network synthesis and Total Site Heat Integration |
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| | 43 | Nagyeong Lee, Dongil Shin and Jaewook Lee | Knowledge Integrated, Deep Neural Network-Based Prediction of Stress-Strain Curves of Polymer Composites for AI-Assisted Materials Design |
| | 44 | Kakeru Fujita, Ryousuke Akimoto, Yasuhiko Suzuki, Yuki Ogasawara and Keigo Matsuda | Evaluation of Economic Performance of CO2 Separation Process Using Mix MatrixX Membrane |
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| | 46 | Maryam Raeisi, Jiawei Huang, Thien An Huynh, Meik B. Franke and Edwin Zondervan | Superstructure optimization for the design of an algae biorefinery producing added value products |
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| | 49 | Xiang Zhang, Teng Zhou and Kai Sundmacher | Metal-Organic Framework Targeting for Optimal Pressure Swing Adsorption Processes |
| | 50 | Niels Normann Sørensen, Haoshui Yu, Lars Erik Ebbesen, Jesper Vester Leifhof Nielsen and Gü rkan Sin | Energy integration through retrofitting of heat exchanger network at Equinor Kalundborg Oil Refinery |
| | 51 | Alejandro Garciadiego, Mozammel Mazumder, Bridgette Befort and Alexander Dowling | Modeling and Optimization of Ionic Liquid Enabled Extractive Distillation of Ternary Azeotrope Mixtures |
| Poster session on Monday, 20 June | 52 | Dian Ning Chia and Eva Sorensen | Optimal Design of Hybrid Distillation/Pervaporation Processes |
| | 53 | Ting He, Truls Gundersen and Wensheng Lin | Design and analysis of a single mixed refrigerant natural gas liquefaction process integrated with ethane recovery and decarbonization using cryogenic distillation |
| | 54 | Zekun Yang, Nan Zhang and Robin Smith | A new decomposition approach for synthesis of heat exchanger network with gloabl heat exchanger optimization |
| | 55 | Jo Yee Ho, Wai Teng Tee and Yoke Kin Wan | A mathematical approach for synthesis of a wastewater treatment process for a new manufacturing plants via circular economy |
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| | 71 | Shiro Masuda | Iterative Feedback Tuning for Regulatory Control Systems Using Estimate of Sensitivity Function |
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| | 250 | Yukiya Saito, Erika Mizuno, Tetsushi Miwa, Koki Watarai, Yukino Suzuki, Midori Sumi, Takashi Hamaguchi and Yoshihiro Hashimoto | Development of cyber incident exercise to be widely adopted in supply chains |
| | 251 | Jonathan Mädler, Isabell Viedt, Julius Lorenz and Leon Urbas | Requirements to a digital twin-centered concept for smart manufacturing in modular plants considering distributed knowledge |
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| | 335 | Amira Siniscalchi, Ruben Lara and Maria Soledad Diaz | Ecohydrological modeling and dynamic optimization for water management in an integrated aquatic and agricultural livestock system |
| | 336 | Amjad Riaz, Muhammad Abdul Qyyum, Arif Hussain, Muhammad Islam, Hansol Choe and Moonyong Lee | Parametric Analysis of Ortho-to-Para Conversion in Hydrogen Liquefaction |
| | 337 | Qiao Yan Soh, Edward O'Dwyer, Salvador Acha and Nilay Shah | Model agnostic framework for analyzing rainwater harvesting system behaviors |
| | 338 | Lanyu Li and Xiaonan Wang | Global assessment and optimization of the economic and carbon reduction potential of renewable energy and negative emission technologies |
| | 339 | Maria Isabella Yliruka, Stefano Moret, Francisca Jalil-Vega, Adam Hawkes and Nilay Shah | The Trade-Off between Spatial Resolution and Uncertainty in Energy System Modelling |
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| | 341 | Carina L. Gargalo, Liliana A. Rodrigues, Alexandre Paiva, Ana Carvalho and Krist V. Gernaey | LCA modeling as a decision-tool for experimental design: the case of extraction of astaxanthin from crab waste |
| | 342 | Shoma Kato and Yasuki Kansha | Decomposition of organic compounds in water from oil refineries |
| | 343 | Yasuki Kansha and Masanori Ishizuka | Energy Harvesting Wireless Sensors Using Magnetic Phase Transition |
| | 344 | Bawornpong Pornchuti, Yuttana Phoochahan, Prarana Padma, Suchada Ruengrit and Pravit Singtothong | Competitive Adsorption of Copper, Nickel, and Chromium Ions onto Amine Functionalized SBA-15 |
| | 345 | Antoine Merlo and Grégoire Léonard | Use of Environmental Assessnent and Techno Economic Analysis (TEA) to Evaluate the Impact and Feasibility of Coatings for Manufacturing Processes |
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