

# ACSMO 2022

Asian Congress of Structural and  
Multidisciplinary Optimization 2022  
May 22-26, 2022, Matsue, Japan

April 13, 2022

## ACSMO 2022 Program of Technical Sessions

### Timetable

May 23 (Monday)						
9:30–9:50	Opening					
9:50–10:30	Plenary lecture 1					
10:40–11:20	Plenary lecture 2					
11:30–12:10	Plenary lecture 3					
13:30–14:50	1A1	1B1	1C1	1D1	1E1	1F1
15:10–16:30	1A2	1B2	1C2*	1D2	1E2	1F2
16:50–18:10	1A3	1B3	1C3	1D3	1E3	1F3
May 24 (Tuesday)						
9:30–10:50	2A1	2B1	2C1	2D1	2E1	2F1
11:10–12:30	2A2	2B2	2C2*	2D2	2E2	2F2
13:30–14:50	2A3*	2B3	2C3	2D3	2E3	2F3
15:10–16:30	2A4	2B4	2C4	2D4	2E4	2F4
16:50–18:10	2A5	2B5	2C5	2D5	2E5	2F5
May 25 (Wednesday)						
9:30–10:50	3A1	3B1	3C1	3D1	3E1	3F1
11:10–12:30	3A2	3B2	3C2	3D2	3E2	3F2
13:30–14:50	3A3	3B3	3C3	3D3	3E3	3F3

- \*The session includes a keynote lecture.

## Plenary lectures (Monday)

Plenary 1	9:50–10:30	Chair: Katsuyuki Suzuki (The Univ. Tokyo)
Paper ID	Speaker	Title
p0038-J	Makoto Ohsaki	Machine learning for optimization of trusses and frames
Plenary 2	10:40–11:20	Chair: Tae Hee Lee (Hanyang Univ.)
Paper ID	Speaker	Title
p0240-K	Seungjae Min	Multi-X optimization
Plenary 3	11:30–12:10	Chair: Gang Li (Dalian Univ. Tech.)
Paper ID	Speaker	Title
p0183-C	Zhiping Qiu	A symplectic iterative method based on dimension perturbation for structural static response problems* <sup>1</sup>

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<sup>1</sup> Authored by Zhiping Qiu and Nan Jiang.

May 23 (Monday)

International conference hall	Small hall	Multipurpose hall	501	601	401
<u>1A1</u> New approaches to topology optimization 1	<u>1B1</u> Meta-materials design and multi-scale optimization 1	<u>1C1</u> Optimization for dynamics, vibration, and sound 1	<u>1D1</u> Data-driven and machine-learning approaches 1	<u>1E1</u> Engineering design optimization 1	<u>1F1</u> Optimization for aerospace problems 1
<u>1A2</u> New approaches to topology optimization 2	<u>1B2</u> Meta-materials design and multi-scale optimization 2	<u>1C2</u> (Keynote lecture) Optimization for dynamics, vibration, and sound 2	<u>1D2</u> Data-driven and machine-learning approaches 2	<u>1E2</u> Engineering design optimization 2	<u>1F2</u> Optimization for aerospace problems 2
<u>1A3</u> Optimization of mechanisms	<u>1B3</u> Optimization for thermal, heat, and fluid problems 1	<u>1C3</u> Sensitivity analysis	<u>1D3</u> Surrogate modeling and digital twins 1	<u>1E3</u> Robust and reliability-based optimization 1	<u>1F3</u> Multi-objective optimization 1

May 24 (Tuesday)

International conference hall	Small hall	Multipurpose hall	501	601	401
<u>2A1</u> Optimization for composites and laminates 1	<u>2B1</u> Optimization for thermal, heat, and fluid problems 2	<u>2C1</u> Algorithms for structural and topology optimization 1	<u>2D1</u> Data-driven and machine-learning approaches 3	<u>2E1</u> Engineering design optimization 3	<u>2F1</u> Multi-objective optimization 2
<u>2A2</u> Optimization for composites and laminates 2	<u>2B2</u> Optimization for thermal, heat, and fluid problems 3	<u>2C2</u> (Keynote lecture) Algorithms for structural and topology optimization 2	<u>2D2</u> Data-driven and machine-learning approaches 4	<u>2E2</u> Engineering design optimization 4	<u>2F2</u> Optimization in engineering 1
<u>2A3</u> (Keynote lecture) New approaches to topology optimization 3	<u>2B3</u> Multi-material topology optimization 1	<u>2C3</u> Metaheuristics 1	<u>2D3</u> Data-driven and machine-learning approaches 5	<u>2E3</u> Robust and reliability-based optimization 2	<u>2F3</u> Optimization for network and transportation problems 1
<u>2A4</u> New approaches to topology optimization 4	<u>2B4</u> Multi-material topology optimization 2	<u>2C4</u> Optimization for dynamics, vibration, and sound 3	<u>2D4</u> Surrogate modeling and digital twins 2	<u>2E4</u> Robust and reliability-based optimization 3	<u>2F4</u> Optimization for network and transportation problems 2
<u>2A5</u> Optimization for additive manufacturing 1	<u>2B5</u> Meta-materials design and multi-scale optimization 3	<u>2C5</u> Optimization for dynamics, vibration, and sound 4	<u>2D5</u> Surrogate modeling and digital twins 3	<u>2E5</u> Robust and reliability-based optimization 4	<u>2F5</u> Identification and inverse problems 1

May 25 (Wednesday)					
International conference hall	Small hall	Multipurpose hall	501	601	401
<u>3A1</u> Optimization for additive manufacturing 2	<u>3B1</u> Multi-material topology optimization 3	<u>3C1</u> Software implementation	<u>3D1</u> Data-driven and machine-learning approaches 6	<u>3E1</u> Surrogate modeling and digital twins 4	<u>3F1</u> Identification and inverse problems 2
<u>3A2</u> New approaches to topology optimization 5	<u>3B2</u> Meta-materials design and multi-scale optimization 4	<u>3C2</u> Algorithms for structural and topology optimization 3	<u>3D2</u> Data-driven and machine-learning approaches 7	<u>3E2</u> Surrogate modeling and digital twins 5	<u>3F2</u> Optimization in engineering 2
<u>3A3</u> New approaches to topology optimization 6	<u>3B3</u> Optimization for composites and laminates 3	<u>3C3</u> Metaheuristics 2	<u>3D3</u> Data-driven and machine-learning approaches 8	<u>3E3</u> Engineering design optimization 5	<u>3F3</u> Optimization in engineering 3

## Monday, 13:30–14:50

<b>1A1</b>		New approaches to topology optimization 1		Chair:
p0066	Jun Hwan Kim	Jun Hwan Kim, Gil Ho Yoon		Multi-component topology optimization considering optimized connection
p0182	Yi Cui	Yi Cui, Toru Takahashi, Toshiro Matsumoto		Structural topology optimization via level set method by considering small strain plasticity to impose stress constraint
p0035	Zhenzeng Lei	Zhenzeng Lei, Hongliang Liu, Dixiong Yang		Topology optimization of structures using NURBS basis function-based density field and design variable reduction
p0124	Zhonghao Gao	Zhonghao Gao, Pai Liu, Yangjun Luo		Manifold-based material field series expansion method for topology optimization on free-form surfaces
<b>1B1</b>		Meta-materials design and multi-scale optimization 1		Chair:
p0063	Christopher Mercer	Christopher Mercer, Thomas Speck, Junyi Lee, Daniel Balint, Marc Thielen		An investigation of the effects of loading condition, boundary constraint and geometry optimization on the mechanical response of auxetic metamaterials
p0249	Wenjun Wu	Wenjun Wu, Pai Liu, Zhan Kang		Design and optimization of metamaterial with simultaneous positive and negative and zero Poisson's ratios
p0011	Xiaoyang Zhang	Xiaoyang Zhang, Ikumu Watanabe		A minimal surface design of 3D auxetic metamaterial with enhanced mechanical and conduction properties
<b>1C1</b>		Optimization for dynamics, vibration, and sound 1		Chair:
p0157	Kei Matsushima	Kei Matsushima, Yuki Noguchi, Takayuki Yamada		Design of an omnidirectional acoustic cloaking device based on a multiple scattering theory
p0150	Yutaro Tanaka	Yutaro Tanaka, Junpei Yokoyama, Ryuzo Toriya, Yang Liu		Optimum design of artificial auditory ossicle for sound conduction reconstruction
p0078	Do Hyeong Kim	Do Hyeong Kim, Hyung gyu Choi, Sol Ji Han, Gil Ho Yoon		Optimized dynamic absorber attenuating the vibrations and structure-borne noises at multiple resonance frequencies

<b>1D1</b>	Data-driven and machine-learning approaches 1		Chair:
p0174	Yunhang Guo	Yunhang Guo, Shan Tang, Zongliang Du, Xu Guo	Data-driven explicit structural topology optimization with hyperelastic materials
p0083	Hanbit Lee	Hanbit Lee, Yeongmin Yoo, Jongsoo Lee	Virtual data-based predictive performance optimization via domain-adaptive designable data augmentation (DADDA)
p0119	Masakazu Kobayashi	Masakazu Kobayashi, Yuki Orii	Optimal design of product aesthetics based on rough set theory and deep learning techniques
p0057	Jun Yan	Jun Yan, Dongling Geng, Qi Xu, Qi Zhang, Zhirui Fan, Haijiang Li	Real-time structure topology optimization using CNN driven moving morphable component method
<b>1E1</b>	Engineering design optimization 1		Chair:
p0088	Toshiaki Kimura	Toshiaki Kimura, Hiroki Takeuchi	Shape optimization for free-form reticulated shell structure with regularized joint pattern
p0023	Luxin Li	Luxin Li, Yuan Liang, Dixiong Yang	Stochastic design optimization of viscous dampers for seismic protection of frame buildings
p0117	Kohei Fujita	Kohei Fujita, Tatsuya Hayashi, Ryota Wataya	Optimal damper placement of high-damping rubber damper for plane frame structure in cooperation with structural analysis software
<b>1F1</b>	Optimization for aerospace problems 1		Chair:
p0244	Yan Wang	Yan Wang, Shengli Xu, Yan Zhou, Caihua Zhou, Bo Wang	Aeroelastic stability design for bend-twist hollow blade based on topology optimization
p0031	Nhu Van Nguyen	Tuan-Anh Vu, Nhu Van Nguyen	Multidisciplinary design optimization and airworthiness activities in Vietnam UAS research and development
p0221	Kei Shimizu	Kei Shimizu, Jianmei He	Lightweight study on satellite antenna sensor support frame by topology optimization method
p0220	Peng Hao	Peng Hao, Yu Wang, Bo Wang, Gang Li	Recent advances on the IGA-based design optimization of variable-stiffness panels

## Monday, 15:10–16:30

<b>1A2</b>	New approaches to topology optimization 2		Chair:
p0061	Yongcun Zhang	Junfeng Gao, Yongcun Zhang, Shutian Liu	A new interface identification method for topology optimization of coated structure with unstructured mesh
p0004	Hao Li	Hao Li, Tsuguo Kondoh, Pierre Jolivet, Kozo Furuta, Heng Zhang, Takayuki Yamada, Kazuhiro Izui, Shinji Nishiwaki	Level-set based topology optimization of multi-physics systems incorporating mesh adaptation
p0216	Kuvar Akhilesh Yadav	Haipeng Jia, Kuvar Akhilesh Yadav, Ruisheng Yu, Misra Anil	Isogeometric structural topology optimization with micromechanics asymmetry material constitution
<b>1B2</b>	Meta-materials design and multi-scale optimization 2		Chair:
p0111	Shin Young Kim	Shin Young Kim, Yu Bin Oh, Joong Seok Lee, Yoon Young Kim	Optimization design of strip-type metagratings for the simultaneous realization of mode-conversion and anomalous reflection of elastic waves
p0092	Xue Yu	Xue Yu, Yiqiang Wang	Hierarchical microstructures with isotropic stiffness
p0053	Musaddiq Al Ali	Musaddiq Al Ali, Masatoshi Shimoda	Concurrent multiscale topology optimization for designing light weight heat activated compliant mechanism
<b>1C2</b>	Optimization for dynamics, vibration, and sound 2		Chair:
p0008	Junji Kato	(Keynote lecture)	Some aspects on topology optimization considering dynamic finite strain structural response <sup>*2</sup>
p0175	Kyunghun Jeon	Kyunghun Jeon, JongJin Park, Jaemin Moon, Chang-Wan Kim	Topology optimization of the electric motor housing to minimize vibration induced by electromagnetic forces
p0200	Haotian Wang	Haotian Wang, Xiaotian Liu, Bin Niu	Multi-scale design optimization of lattice structures for maximizing the fundamental frequency

<sup>2</sup> Authored by Junji Kato and Takumi Sugiura.



<b>1D2</b>	Data-driven and machine-learning approaches 2		Chair:
p0148	Dong-Hoon Choi	Dong Heum Ryu, Yongbin Lee, Dong-Hoon Choi	Development of a big data-driven efficient algorithm for determining a network architecture of a multilayer perceptron for regression problems
p0032	Takanori Chihara	Takanori Chihara, Jiro Sakamoto	Generating deceleration behavior of autonomous driving by reinforcement learning that reflects passenger discomfort
p0086	Suja Shree Ravichandran	Suja Shree Ravichandran, Suhas Suresh Karkada, Sesha Gundavarapu, Vinay Ramanath, Palaniappan Ramu	Transfer learning for optimization
p0036	Tsubasa Kobayashi	Tsubasa Kobayashi, Hiroshi Hasegawa	Shape and layout imagery creation based on BMI: validation for custom-made
<b>1E2</b>	Engineering design optimization 2		Chair:
p0232	Ticho Ooms	Ticho Ooms, Gieljan Vantghem, Thomas Thienpont, Ruben Van Coile, Wouter De Corte	Different approaches for topology optimization of building structures subjected to thermo-mechanical loads due to fire
p0202	Chie Matsuo	Chie Matsuo	Shape optimization of latticed shells applying arc modelling
p0159	Kamilla Silva	Kamilla Silva, Kyo Beom Ku, Josue Labaki, Gil Ho Yoon, Renato Picelli	Structural foundation design via topology optimization and soil-structure interaction

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<b>1F2</b>	Optimization for aerospace problems 2	Chair:
p0184	Doyoun Kwon	Doyoun Kwon, Yeonju Choi, Maxim Tyan, Jaewoo Lee
p0010	Si-yang Piao	Si-yang Piao
p0235	Tuan Anh Nguyen	Tuan Anh Nguyen, Kwon-Su Jeon, Jae-Woo Lee, Iu Re, Francisco Airton Silva
p0029	Quoc-Huy Nghiem	Quoc-Huy Nghiem, Xuan-Long Bui, Nhat-Minh Hoang, Quang-Hai Nguyen, Nhu Van Nguyen

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## Monday, 16:50–18:10

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<b>1A3</b>	Optimization of mechanisms	Chair:	
p0152	Neung Hwan Yim	Neung Hwan Yim, Jeonghan Yu, Jungho Kim, Seok Won Kang, Yoon Young Kim	Why are spring-connected block models useful for topology optimization of rigid-body linkage mechanisms?
p0138	Tianchen Cui	Tianchen Cui, Zongliang Du, Chang Liu, Zhi Sun, Xu Guo	Explicit topology optimization with moving morphable component (MMC) introduction mechanism
p0203	Haipeng Jia	Haipeng Jia, Ruisheng Yu, Kuvar Akhilesh Yadav, Misra Anil	Topology optimization of compliant mechanism with asymmetry material constitution
p0075	Hoo Min Lee	Hoo Min Lee, Da Yeon Shin, Gil Ho Yoon	Variation of hydrophobic characteristics using micro-surface patterns and compliant mechanism-based actuator obtained by additive manufacturing

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<b>1B3</b>	Optimization for thermal, heat, and fluid problems 1	Chair:	
p0185	Keisuke Takaara	Keisuke Takaara, Hiroya Hoshiba, Shinsuke Takase, Koji Nishiguchi, Junji Kato	Topology optimization for time dependent thermal-fluid problems
p0151	Hayoung Chung	Hayoung Chung, Byeonghyeon Go	Optimal design of thermoelastic structures considering structural nonlinearity
p0146	Sheng Pan	Sheng Pan, Minghao Yu, Hao Li, Zheng Li, Mengke Ren, Changyu Shen	Numerical investigation of liquid-cooled heat sinks designed by MMC–density two-step strategy
p0172	Jaemin Moon	Jaemin Moon, Jun Lee, Hyukkun Chang, Chang-Wan Kim	Optimization of 55-Ah large capacity LIB pouch cell thermal behavior with different tab type, tab size, and tab position

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<b>1C3</b>	Sensitivity analysis		Chair:
p0051	Kota Sakai	Kota Sakai, Yuki Noguchi, Kei Matsushima, Takayuki Yamada	A study of PDE-based formulation of the local thickness constraint for sensitivity analysis
p0161	Yuan Liang	Kai Sun, Yuan Liang, Gengdong Cheng	Sensitivity analysis of discrete variable topology optimization
p0218	Juhyun Lee	Juhyun Lee, Dahui Choi, Sangho Kim	A study of sensitivity analysis for standardization of drone noise
p0104	Toshiro Matsumoto	Toshiro Matsumoto, Yotaro Konishi, Shinsei Sato, Yi Cui, Toru Takahashi	Topological derivative for potential problems with nonlinear boundary conditions
<b>1D3</b>	Surrogate modeling and digital twins 1		Chair:
p0080	HyeongSeok Koh	HyeongSeok Koh, Gil Ho Yoon	Partial topology optimization of multi-components system using a quasi-static Ritz vector-based component mode synthesis
p0136	Dequan Zhang	Dequan Zhang, Pengfei Zhou, Xu Han	Active learning Kriging model-driven time-dependent reliability analysis method through stochastic process discretization
p0205	Yan Zhou	Yan Zhou, Jingkui Li	An improved active learning method based on Kriging model for structural reliability analysis
p0059	Kohei Shintani	Kohei Shintani, Tomotaka Sugai, Takayuki Yamada	A set based analytical target cascading method using Bayesian active learning
<b>1E3</b>	Robust and reliability-based optimization 1		Chair:
p0125	Wanxin He	Gang Li, Bin Lu, Long Jiang, Wanxin He	An efficient importance sampling method based on active Kriging, hybrid Monte Carlo algorithm and Gaussian mixture model
p0131	Byeong Uk Song	Byeong Uk Song, Seonghyeok Yang, Ikjin Lee	Parallel adaptive Kriging method for efficient sampling-based reliability analysis
p0113	Jiquan Yan	Jiquan Yan, Weifei Hu, Qinyang Shi, Jianrong Tan	A new time-dependent reliability analysis method using an instantaneous adaptive Kriging model based on Voronoi partition and important sampling

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<b>1F3</b>	Multi-objective optimization 1	Chair:
p0014	Komei Hanatani	Komei Hanatani, Shinya Honda, Katsuhiko Sasaki, Ryo Takeda
p0089	Satoshi Kitayama	Satoshi Kitayama, Akihiro Matsubayashi, Masahiro Takano, Yusuke Yamazaki, Yoshikazu Kubo, Shuji Aiba
p0196	Jianbo Chen	Jianbo Chen, Shujuan Hou
p0210	Shridhar Kulkarni	Shridhar Kulkarni, Naman Jain, Palaniappan Ramu

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Application of sequential approximated multi-objective optimization for patched composite structures

Optimization of multi-stage packing pressure profile in plastic injection molding

Energy absorption analysis and optimization of a novel thin-walled structure

Visualizing mixed type datasets using iSOM

## Tuesday, 9:30–10:50

<b>2A1</b>	Optimization for composites and laminates 1		Chair:
p0102	Takahito Moribe	Takahito Moribe, Hiroya Hoshiba, Junji Kato	Optimization of continuous fiber arrangement and orientation of 3D-printing FRP
p0253	Rutong Yang	Weihong Zhang, Yingjie Xu, Rutong Yang	Simultaneous design of the process and structural parameters for stiffened curved composite panels
p0191	Sunghoon Lim	Sunghoon Lim, Kazuhiro Izui, Shinji Nishiwaki	Design optimization of linear oscillatory actuators with a wide range of motion using magnetic composite materials
<b>2B1</b>	Optimization for thermal, heat, and fluid problems 2		Chair:
p0094	Yang Liu	Yang Liu, Jianbin Du	The global optimal structural morphogenesis for heat conduction
p0009	Wei Sha	Wei Sha, Mi Xiao, Liang Gao	Omnidirectional thermal carpet with arbitrary shape designed via topology optimization
p0084	Qi Xu	Qi Xu, Jun Yan, Dongling Geng, Zhirui Fan	Synergic optimization design of heat source layout and heat dissipation structure based on MMC method
p0095	Naruethep Sukulthanasorn	Naruethep Sukulthanasorn, Mao Kurumatani, Junji Kato, Kenjiro Terada	Two-scale concurrent topology optimization for transient heat structure
<b>2C1</b>	Algorithms for structural and topology optimization 1		Chair:
p0163	ZeYu Deng	ZeYu Deng, Yuan Liang, Gengdong Cheng	Discrete variable topology optimizations for maximizing structural frequency and frequency gap
p0168	Naoto Okuzono	Naoto Okuzono, Shinnosuke Fujita	Global topology optimization of frame structures considering the density of members
p0049	Akatsuki Nishioka	Akatsuki Nishioka, Yoshihiro Kanno	A smoothing method for worst-case topology optimization under load uncertainty
p0120	Yi Yan	Yi Yan, Pai Liu, Yangjun Luo, Xiaopeng Zhang	Photonic crystal topological design for polarized and polarization-independent band gaps by gradient-free topology optimization

<b>2D1</b>	Data-driven and machine-learning approaches 3		Chair:
p0017	Nicola Andrea Kotaro Takenaka	Nicola Andrea Kotaro Takenaka, Makoto Yamakawa	Optimal design of space steel frames based on decomposition and reconstruction of plane frames using reinforcement learning
p0165	Tomotaka Sugai	Tomotaka Sugai, Kohei Shintani, Takayuki Yamada	A data-driven topology optimization using multi-task deep convolutional autoencoder
p0231	Minseok Chae	Minseok Chae, Wongon Kim, Byeng D. Youn	A data-driven molding process optimization considering important features related to molding quality and efficiency
p0068	Dong-Yoon Kim	Dong-Yoon Kim, Yeon-Jun Woo, Gil Ho Yoon	Fault diagnosis system with a new nonlinear transformation augmentation approach for deep learning
<b>2E1</b>	Engineering design optimization 3		Chair:
p0025	Thi Pham	Thi Pham, Yasumi Kawamura, Ami Hasegawa, Tetsuo Okada	A study on simplifying structure based on topology optimization and multiloading conditions for structural topology optimization, aiming to apply on ship structures
p0126	Xudong Jiang	Xudong Jiang, Chang Liu, Zongliang Du, Weisheng Zhang, Xu Guo	Explicit topology/layout optimization design of stiffened thin-walled structures based on moving morphable component (MMC) method
p0135	Changwoo Lee	Changwoo Lee, Jeawook Lee, In Gwun Jang	Two-stage topology optimization framework of the rare-earth-free synchronous reluctance motors considering manufacturability and structural safety

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<b>2F1</b>	Multi-objective optimization 2	Chair:	
p0167	Toshiaki Hirate	Toshiaki Hirate, So Fukuhara, Kenzen Takeuchi, Masao Arakawa	Experimental identification on natural frequency of industrial equipment using multi-objective optimizing method
p0192	Jongsun Yoon	Jongsun Yoon, Seungjae Min	Multi-objective optimization of stack size and operating conditions for fuel cell electric vehicles
p0233	Nichen Tong	Nichen Tong, Qiming Liu, Xu Han	Interval multi-objective optimization of artillery exterior ballistic under uncertainty
p0020	Bach Do	Bach Do, Makoto Ohsaki	Sequential batch sampling approach to discrete multi-objective reliability-based design optimization

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## Tuesday, 11:10–12:30

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<b>2A2</b>	Optimization for composites and laminates 2	Chair:	
p0239	Masaki Kameyama	Masaki Kameyama, Daisuke Ito	Optimal design of CFRP laminated plates with an interleaved viscoelastic damping layer using lamination parameters
p0065	Haoqing Ding	Haoqing Ding	Optimization design of manufacturable and curvilinear fibers for variable-stiffness composites through the CS-RBFs-based interpolation
p0208	Hiroya Hoshiba	Hiroya Hoshiba, Mutsuki Fujiwara, Junji Kato	Topology optimization using brittle-ductile SIMP composites

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<b>2B2</b>	Optimization for thermal, heat, and fluid problems 3	Chair:	
p0091	Ryohei Katsumata	Ryohei Katsumata, Koji Nishiguchi, Tokimasa Shimada, Hiroya Hoshiba, Junji Kato	Large-scale computation of unsteady flow topology optimization using the building-cube method
p0050	Gil Ho Yoon	Gil Ho Yoon	Sensitivity analysis and topology optimization for transient fluid-structure interaction system
p0118	Naoyuki Ishida	Naoyuki Ishida, Hao Li, Tsuguo Kondoh, Kozo Furuta, Kazuhiro Izui, Shinji Nishiwaki	Topology optimization for a microfluidic mixing problem based on the level-set method
p0190	Yongbo Deng	Yongbo Deng, Weihong Zhang, Zhenyu Liu, Jihong Zhu, Jan Korvink	Topology optimization for solid/liquid interfaces

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<b>2C2</b>	Algorithms for structural and topology optimization 2		Chair:
p0170	Gang-Won Jang	(Keynote lecture)	Bayesian optimization-based topology optimization using moving morphable bars <sup>*3</sup>
p0043	Saku Aoyagi	Saku Aoyagi, Kazuki Hayashi, Makoto Ohsaki	Force density method for simultaneous optimization of geometry and topology of trusses of uniform cross-sections on free-form design surface
p0224	Xinyu Yan	Xinyu Yan, Yuan Liang, Geng-dong Cheng	Discrete variable topology optimization of total thermal resistance of internal fin structures based on eigenvalue optimization
<b>2D2</b>	Data-driven and machine-learning approaches 4		Chair:
p0107	Kazuo Yonekura	Yuki Tomori, Kazuo Yonekura, Katsuyuki Suzuki	Airfoil generation using conditional Wasserstein VAEGAN with gradient penalty
p0115	Jianhao Fang	Weifei Hu, Jianhao Fang, Zhenyu Liu, Weiyi Chen, Jianrong Tan	A deep reinforcement learning-based optimization method for designing wind turbine rotor speed considering rain erosion
p0045	Yohei Yokosuka	Yohei Yokosuka, Taishi Kujuro, Toshio Honma	Structural optimization of steel frame structures using surrogate model by neural networks
<b>2E2</b>	Engineering design optimization 4		Chair:
p0064	Mai Nonogawa	Mai Nonogawa, Hidenaga Takahashi, Kenzen Takeuchi, Hideyuki Azegami	Topology emergence of shoes in anisotropic knitted fabric optimizing contact pressure
p0108	Jungmi Kim	Jungmi Kim, Juyoung Choi, Yoojeong Noh, Young-Jin Kang	Development of customized insole design platform
p0058	Cem Guzelbulut	Cem Guzelbulut, Satoshi Shimonono, Hiroaki Hobara, Katsuyuki Suzuki	Personalized optimization of shape and stiffness of prosthesis for Para athlete

<sup>3</sup> Authored by Gang-Won Jang, Quang Dat Tran, and Dongil Shin.

<b>2F2</b>	Optimization in engineering 1	Chair:
p0256	Hyung Jun Park	Hyung Jun Park, Nam Ho Kim, Joo-Ho Choi
p0034	Zhiyuan Jia	Zhiyuan Jia, Yangjun Luo, Xiaopeng Zhang
p0188	Ulfa Fairuz Izdihar	Jyun-Yu Chen, Ulfa Fairuz Izdihar, Po Ting Lin

Chair:

Optimization of health monitoring system based on sensor cost and its prediction performance

Topological design of accurately controlled point defect phononic crystal resonators

Tool measurement using microscopic full three-dimensional reconstruction ( $\mu$ FTR)

## Tuesday, 13:30–14:50

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<b>2A3</b>	New approaches to topology optimization 3		Chair:
p0248	Weisheng Zhang	(Keynote lecture)	CAD-oriented explicit topology optimization based on moving morphable components/voids
p0079	Ki-Hyun Kim	Ki-Hyun Kim, Gil Ho Yoon	Acoustic topology optimization based on moving morphable components and additional design procedures using deep learning
p0250	Ying Zhou	Ying Zhou, Weihong Zhang	Worm-like highly-deformable shape features for topology optimization

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<b>2B3</b>	Multi-material topology optimization 1		Chair:
p0056	Qianqian Sui	Qianqian Sui, Jun Yan	Stress-constrained topology optimization for the multi-material thermo-hyperelastic compliant mechanism based on inverse motion
p0105	Guangwei Liu	Guangwei Liu, Hiroya Hoshiba, Koji Nishiguchi, Junji Kato	Multi-material dynamic optimal design based on generalized Maxwell model
p0214	Nari Nakayama	Nari Nakayama, Hao Li, Pierre Jolivet, Kozo Furuta, Shinji Nishiwaki, Kazuhiro Izui	Multi-material topology optimization of an eigenfrequency problem
p0081	Longlong Song	Longlong Song, Jian Zhao, Tong Gao, Jiajia Li, Lei Tang, Yang Li, Weihong Zhang	Maximum length scale control in density-based multi-material topology optimization

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<b>2C3</b>	Metaheuristics 1		Chair:
p0112	Yan Forestas	Yan Forestas, So Fukuhara, Masao Arakawa	Development of range rezonance genetic algorithm
p0217	Min Ji Kim	Min Ji Kim, Jae Hyun An, Maxim Tyan, Jae Woo Lee	A multi-step hybrid GA-SQP optimization strategy for improving stability characteristics of eVTOL aircraft
p0007	Shin Sasaki	Shin Sasaki, Mitsuru Kitamura, Akihiro Takezawa	Design of sandwich panel structure by 2 step optimization of fully stressed design and genetic algorithm
p0238	Chengli Yang	Chengli Yang, Yan Wang, Haixin Zhao, Yang Jin, Bo Wang, Shengli Xu	A multidisciplinary optimal design method for axial compressor blades based on mesh deformation
<b>2D3</b>	Data-driven and machine-learning approaches 5		Chair:
p0193	Minsik Seo	Minsik Seo, Seungjae Min	Near-optimal topology prediction on unstructured meshes via graph neural network
p0054	Shinnosuke Fujita	Shinnosuke Fujita, Taisei Nishie	Development of a prediction model for collapse load factor by machine learning and its application to shape optimization problems
p0143	Tianle Yue	Tianle Yue, Hang Yang, Zongliang Du, Chang Liu, Khalil I. Elkhodary, Shan Tang, Xu Guo	A mechanistic-based data-driven approach to accelerate structural topology optimization through finite element convolutional neural network (FE-CNN)
p0247	Jeong Sam Han	Jeong Sam Han	Application of CAE simulation based convolutional neural networks to fault detections in mechanical structures

<b>2E3</b>	Robust and reliability-based optimization 2		Chair:
p0024	Hui Li	Hui Li, Guohai Chen, Dixiong Yang	Direct probability integral method for reliability sensitivity analysis and optimal design of structures
p0097	Jeonghwan Choo	Jeonghwan Choo, Yongsu Jung, Hwisang Jo, Ikjin Lee	A statistical model calibration of the correlated unknown model variables
p0002	Yoshihiro Kanno	Yoshihiro Kanno	On reliability constraint when design variables follow multivariate normal distribution with uncertain mean vector and variance-covariance matrix
p0114	Tongzhou Zhang	Weifei Hu, Tongzhou Zhang, Zhenyu Liu, Xiaoyu Deng, Jianrong Tan	A new model validation metric using small experimental and simulation data
<b>2F3</b>	Optimization for network and transportation problems 1		Chair:
p0246	Wenyi Ding	Wenyi Ding, Ryuichi Shibasaki, Chathumi Ayanthi Kavirathna	Vessel speed optimization in the transportation market with different modes including Northern Sea Route
p0226	Kyosuke Takahashi	Kyosuke Takahashi, Hisoshi Inomo, Wataru Shiraki, Makoto Ogasawara, Hitomi Ishikawa	Optimization of road restoration simulation for regional recovery after a large-scale disaster
p0087	Haichao An	Haichao An, Byeng D. Youn, Heung Soo Kim	A methodology of optimal sensor placement for structural health monitoring considering information redundancy, model uncertainty and measurement noise

## Tuesday, 15:10–16:30

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<b>2A4</b>	New approaches to topology optimization 4		Chair:
p0141	Wenshang Zhou	Wenshang Zhou, Shouyu Cai	A flexibly deformable solid feature for three-dimensional topology optimization
p0228	Honghao Tian	Honghao Tian, Weisheng Zhang, Kie Youn Sung, Xu Guo	Topology optimization with pressure load through BEM-based MMV approach
p0176	Kaito Ohtani	Kaito Ohtani, Kentaro Yaji, Shintaro Yamasaki, Kikuo Fujita	Application of data-driven multifidelity topology design to natural convection heat sinks
p0132	Wendong Huo	Wendong Huo, Chang Liu, Zongliang Du, Xu Guo	Topology optimization on complex surfaces based on the moving morphable components (MMCs) method and computational conformal mapping (CCM)

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<b>2B4</b>	Multi-material topology optimization 2		Chair:
p0137	Yang Li	Yang Li, Tong Gao, Qianying Zhou, Ping Chen, Wei Dong, Dezheng Yin, Weihong Zhang	Thin-walled structures with lattices and stiffeners designed by multi-material topology optimization
p0245	Kazushi Isoda	Kazushi Isoda, Nari Nakayama, Kozo Furuta, Sunghoon Lim, Kazuhiro Izui, Shinji Nishiwaki	Level-set based multi-material topology optimization considering material and joint cost
p0052	Zunyi Duan	Zunyi Duan, Bin Xu, Jun Yan, Jihong Zhu	Concurrent multi-material and multi-scale design optimization of fiber-reinforced composite material and structures for minimum structural compliance
p0197	Kozo Furuta	Kozo Furuta, Doe Young Hur, Sunghoon Lim, Kazuhiro Izui, Shinji Nishiwaki	Level set-based multi-material topology optimization regarding structural weight reduction

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<b>2C4</b>	Optimization for dynamics, vibration, and sound 3		Chair:
p0077	Hyunggyu Choi	Hyunggyu Choi, Gil Ho Yoon	Acoustic topology optimization framework considering the range of components in MMC method
p0258	Yixiao Zhu	Yixiao Zhu, Yaguang Wang, Xiaopeng Zhang, Zhan Kang	The dynamic topology optimization with a new form of forbidden frequency band constraint
p0046	Yuki Noguchi	Yuki Noguchi, Kei Matsushima, Takayuki Yamada	Topology optimization for labyrinthine acoustic metamaterials with a negative refractive index
<b>2D4</b>	Surrogate modeling and digital twins 2		Chair:
p0211	Rashmi Rama Sushil	Rashmi Rama Sushil, Dhanush Aadithaya J A, Palaniappan Ramu	Discontinuity detection and optimization using local surrogate modeling techniques
p0003	Kazuki Hayashi	Kazuki Hayashi, Makoto Ohsaki	Knowledge extraction of discrete cross-section optimization of planar steel frames using graph-based reinforcement learning
p0169	Xueguan Song	Pengwei Liang, Xueguan Song	Performance monitoring and control parameter optimization of high-energy laser system based on digital twin method
p0144	Liangliang Yang	Liangliang Yang, Xiaonan Lai, Xiwang He, Xueguan Song	A fast signal processing method for digital twin of aircraft wing
<b>2E4</b>	Robust and reliability-based optimization 3		Chair:
p0130	Ye Liu	Ye Liu, Gang Li	Analytical robust design optimization based on a hybrid surrogate model by combining polynomial chaos expansion and Gaussian kernel
p0039	Dibyalochana Sahoo	Dibyalochana Sahoo, Palaniappan Ramu	A non-probabilistic uncertainty quantification approach using Chebyshev inequality and convex hull
p0223	Tong Zhao	Tong Zhao, Xinzhe Wang, Fei Cheng	Failure-safe topology optimization structure based on fatigue
p0128	Shuya Nozawa	Shuya Nozawa, Akihiro Takezawa	Robust topology and orientation optimization of fiber-reinforced composite structures under manufacturing uncertainty



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<b>2F4</b>	Optimization for network and transportation problems 2	Chair:
p0093	Yiyang Tang	Yiyang Tang, Zhaowei Li, Kenji Tanaka, Daishi Sagawa
p0133	Chungeon Kim	Chungeon Kim, Hyunseok Oh
p0255	Makoto Ozaki	Makoto Ozaki, Tomoya Kawasaki

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A last-mile delivery activity simulator based on truck-to-customer delivery behavior

Sensor network design for pipeline systems by explainable artificial intelligence and exhaustive search approach

The optimal allocation of dynamic wireless power transfer considering the load capacity of electric trucks

## Tuesday, 16:50–18:10

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<b>2A5</b>	Optimization for additive manufacturing 1	Chair:	
p0229	Atsushi Ezura	Atsushi Ezura, Hitomi Suzuki, Satoshi Abe, Tatsuaki Furumoto, Jiro Sakamoto	Overhang shape in metal addition manufacturing of molds with topology-optimized cooling channels
p0252	Shaoying Li	Shaoying Li, Jihong Zhu, Weihong Zhang, Shangqin Yuan	Concurrent optimization integrated material–process–structure relationship for additive manufacturing
p0013	Tiannan Hu	Tiannan Hu, Yaguang Wang, Heng Zhang, Hao Li, Xiaohong Ding, Kazuhiro Izui, Shinji Nishiwaki	Topological design of coated structures with layer-wise graded lattice infill for the maximization of the fundamental eigenfrequency

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<b>2B5</b>	Meta-materials design and multi-scale optimization 3	Chair:	
p0041	Jianbin Du	Haoxuan Wang, Jianbin Du	Topological design of metamaterial structure with multi-subdomain pattern repetition
p0021	Junpei Fujita	Junpei Fujita, Masatoshi Shimoda	Concurrent multiscale optimization method for natural vibration design of porous structures
p0012	Joong Seok Lee	Joong Seok Lee, Won Uk Yoon, Yoon Young Kim	Topology optimization design of monolayered anisotropic meta-materials for fully mode-converting transmission of elastic waves

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<b>2C5</b>	Optimization for dynamics, vibration, and sound 4	Chair:	
p0026	Rikuto Yamada	Rikuto Yamada, Jin-Xing Shi, Shinobu Sakai	Optimal design of vibration lures based on fluid–structure interaction analysis
p0195	Junpeng Zhao	Junpeng Zhao, Chunjie Wang	Topology optimization of structures subjected to stationary stochastic excitation
p0027	Jin-Xing Shi	Jin-Xing Shi, Kana Yoshizumi, Masatoshi Shimoda, Shinobu Sakai	Shape design optimization of 3D continua with initial compressive stress in eigenvalue problems

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<b>2D5</b>	Surrogate modeling and digital twins 3		Chair:
p0070	Myung Shin	Myung Shin, Gil Ho Yoon	Ritz vector based model order reduction scheme for acoustic topology optimization
p0209	Haodong You	Haodong You	A Multi-grid reduced-order topology optimization method for structures subjected to stationary random excitation
p0016	Mingi Kim	Mingi Kim, In Gwun Jang	Analytical investigation of approximating the optimal operating condition of multi-receiver wireless power transfer systems in real time
<b>2E5</b>	Robust and reliability-based optimization 4		Chair:
p0237	Won Seok Song	Won Seok Song, Seungjae Min	Robust topology optimization for improving torque performance considering MTPA control of IPMSM using Chebyshev interval method
p0155	Zeng Meng	Liangbing Guo, Zeng Meng, Xuan Wang	Uncertainty-oriented topology optimization design for continuum structure considering buckling constraint
p0101	Xinzhe Wang	Xinzhe Wang, Tong Zhao, Fei Cheng	Failure-safe topology optimization structure considering size constraints
<b>2F5</b>	Identification and inverse problems 1		Chair:
p0166	So Fukuhara	So Fukuhara, Toshiaki Hirate, Kenzen Takeuchi, Masao Arakawa	Identification method for material constants of industrial equipment based on the adjoint variable method
p0100	Pugazhenthir Thananjayan	Pugazhenthir Thananjayan, Palaniappan Ramu, Sundararajan Natarajan	Bayesian approach to detect and quantify the flaw parameters using RJMCMC algorithm
p0181	Zhongxu Wang	Zhongxu Wang, Akira Saito, Hidetaka Saomoto	Damage identification strategies using topology optimization and frequency response functions
p0076	Kyo Beom Ku	Kyo Beom Ku, Jun Hwan Kim, Kamilla Emily Santos Silva, Renato Picelli, Gil Ho Yoon	Statistical topology optimization method for structural damage detection

### Wednesday, 9:30–10:50

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<b>3A1</b>	Optimization for additive manufacturing 2		Chair:
p0142	Wu Xu	Wu Xu, Chang Liu, Xu Guo	Additive manufacturing-oriented graded lattice structure design based on MMC method and partition coordinate perturbation technology
p0164	Yuya Yoshimine	Yuya Yoshimine, Kazuyuki Hanahara	Algorithmic design for 3D printer manufacturing (an approach to elegant optimal design)
p0055	Akihiro Takezawa	Akihiro Takezawa	Variable lattice density optimization for reduction of thermal distortion of laser powder bed fusion using sequential inherent strain method

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<b>3B1</b>	Multi-material topology optimization 3		Chair:
p0096	Daiki Watanabe	Daiki Watanabe, Hiroya Hoshiba, Koji Nishiguchi, Junji Kato	Multi-material topology optimization considering mutually-exchangeable graded interface
p0044	Masaki Noda	Masaki Noda, Yuki Noguchi, Kei Matsushima, Takayuki Yamada	A study on adjusting geometric complexity in multiple material topology optimization method based on extended level set method
p0145	Naigang Hu	Naigang Hu, Baoyan Duan	Electromagnetic-performance-oriented multi-material topology optimization of supporting structures for large log periodic dipole array antennas

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<b>3C1</b>	Software implementation		Chair:
p0106	Yunyu Wang	Yunyu Wang, Kun Yan, Jun Yan	Simplified convective heat transfer topology optimization method based on OpenFOAM
p0074	Young Hun Choi	Young Hun Choi, Gil Ho Yoon	A MATLAB code for topology optimization to control the trajectory of particle in fluid
p0134	Zongliang Du	Zongliang Du, Tianchen Cui, Chang Liu, Weisheng Zhang, Yilin Guo, Xu Guo	Upgraded Matlab codes for the moving morphable component (MMC) method
<b>3D1</b>	Data-driven and machine-learning approaches 6		Chair:
p0147	Kentaro Yaji	Kentaro Yaji, Tan Bui-Thanh	Accelerating multifidelity topology design using neural networks
p0005	Chi-tahon Kupwiwat	Chi-tahon Kupwiwat, Kazuki Hayashi, Makoto Ohsaki	Topology optimization of braced latticed shells using deep deterministic policy gradient and graph convolutional network
p0236	Taeyoon Lim	Taeyoon Lim, Seunghun Lee, Minsik Seo, Seungjae Min	Optimal truss structure prediction method using graph neural network
p0121	Tensho Tomono	Tensho Tomono, Masao Arakawa, Tetsuro Butsuen	Development of driver models applying gamification and research on efficient learning methods.
<b>3E1</b>	Surrogate modeling and digital twins 4		Chair:
p0099	In-Bum Chung	In-Bum Chung, Yongbin Lee, Dong-Heum Ryu	Automated machine learning using meta-learning for the selection of metamodeling techniques and optimization of its user-defined parameters
p0158	Shuai Zhang	Shuai Zhang, Xueguan Song	An advanced and robust approach for selecting scale factor in Multi-fidelity surrogate
p0048	Kohei Saito	Kohei Saito, Satoshi Kitayama, Tao Wang, Sathoshi Furuta, Masaharu Amano	Billet shape optimization in multi-stage hot forging
p0042	Manyu Xiao	Manyu Xiao, Yu Yan, Jun Ma, Weihong Zhang	On-the-fly reduced-order modelling for large-scale dynamic topology optimization

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<b>3F1</b>	Identification and inverse problems 2		Chair:
p0001	Takahiko Kurahashi	Takahiko Kurahashi, Kengo Takeuchi, Masaya Shimada, Masayuki Kishida	Defect topology identification analysis using hammering response data based on level-set type topology optimization
p0186	Shogo Nakasumi	Shogo Nakasumi, Yoshihisa Harada	A study on improvement of deep crack identification using Tikhonov regularization
p0178	Dooho Lee	Dooho Lee, Sun-Yong Kim	Identification of joint characteristics in a rail structure with FRF-based substructuring method considering rotational DOFs
p0234	S. Y. Duan	S. Y. Duan, Y. L. Li, X. Han, G. R. Liu	Two-way TrumpetNets and TubeNets for explicit solutions to inverse problems

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### Wednesday, 11:10–12:30

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<b>3A2</b>	New approaches to topology optimization 5	Chair:	
p0198	ZhenYu Liu	TongXing Zuo, Chong Wang, HaiTao Han, QiangLong Wang, ZhenYu Liu	Topology control for structural topology optimization
p0219	Kai Li	Kai Li, Gengdong Cheng, Yu Wang	Structural topology optimization of elastoplastic continuum under shakedown theory
p0149	Jihan Zhang	Jihan Zhang, Yoshinori Nishio, Yang Liu	A parameter-free framework for boundary identification of topology optimization results

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<b>3B2</b>	Meta-materials design and multi-scale optimization 4	Chair:	
p0037	Naoki Murai	Naoki Murai, Yuki Noguchi, Kei Matsushima, Takayuki Yamada	Multiscale topology optimization for the design of electromagnetic metamaterials
p0082	Ji Wan Kim	Ji Wan Kim, Myung Shin, Gil Ho Yoon	Structure optimization of multidirectional metamaterial with broadband shear wave attenuation
p0022	Yutaro Takumi	Yutaro Takumi, Masatoshi Shimoda	Size optimization of micro-frame structure for designing multi-scale structure

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<b>3C2</b>	Algorithms for structural and topology optimization 3	Chair:	
p0212	Cheng Wang	Hongliang Liu, Cheng Wang, Yuan Liang, Peijin Wang	Discrete variable topology optimization of multi-material structure considering minimum length scale control
p0162	Naohiro Tamura	Naohiro Tamura, Shinnosuke Fujita	Cross-sectional optimization of latticed shells consisting of steel pipes and H-beams solved as a continuous variable problem
p0015	Daisuke Murai	Daisuke Murai, Ryuji Omote, Masato Tanaka	Solving topology optimization problems using hyper-dual numbers
p0189	Jiachen Luo	Jiachen Luo, Zongliang Du, Xu Guo	Multi-class multi-functional design of photonic topological insulators by rational symmetry-indicators

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<b>3D2</b>	Data-driven and machine-learning approaches 7		Chair:
p0127	Jongsoo Lee	Dongha Kim, Jongsoo Lee	Spectrogram-based classifier metamodels for driving sound qualities using data augmentation and explainable artificial intelligence
p0129	Hyukjin Koh	Hyukjin Koh, In Gwun Jang	Bone microstructure reconstruction from low-resolution skeletal images using deep learning with node-link graph-based connectivity
p0251	Nao Susuki	Bate He, Nao Susuki, Eisuke Kita	Application of genetic algorithm for hyperparameter optimization of generative adversarial networks
<b>3E2</b>	Surrogate modeling and digital twins 5		Chair:
p0098	Minjik Kim	Minjik Kim, Ikjin Lee	Active learning Kriging model with new convergence criterion for efficient estimation of low probability of failure
p0230	Yitang Wang	Yitang Wang, Yong Pang, Xueguan Song	Sparse surrogate modeling based on hybrid dictionary for expensive black-box problems
p0254	Jingwen Song	Jingwen Song, Weihong Zhang	Efficient Bayesian updating of coupled simulation models for additive manufacturing with hierarchical surrogates
p0060	Motoki Nonaka	Motoki Nonaka, Nozomu Kogiso	OHT strength prediction model of laminated plates using Bayesian optimization
<b>3F2</b>	Optimization in engineering 2		Chair:
p0040	Jiangling Xiong	Jiangling Xiong, Siran Chen, Yongbum Choi, Kazuhiro Matsugi, Yuuji Hisazato	Performance evaluation of carbon nanofiber thermal interface material
p0028	Cong-Anh Pham	Cong-Anh Pham, Quang-Hai Nguyen, Nhu Van Nguyen	Analysis and optimization of combustion chamber for small gas turbine
p0171	Hansu Kim	Hansu Kim, Dong Hyun Ha, Tae Hee Lee	Scenario-based multidisciplinary optimization for a new accelerated life testing of electric traction motor and inverter system



### Wednesday, 13:30–14:50

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<b>3A3</b>	New approaches to topology optimization 6	Chair:	
p0206	Chang Liu	Chang Liu, Xudong Jiang, Zongliang Du, Wendong Huo, Xu Guo	Explicit layout/topology optimization of thin-walled structures based on moving morphable components (MMC) method and adaptive ground structure approach
p0257	Yuya Kozuka	Yuya Kozuka, Kozo Furuta, Kazuhiro Izui, Shinji Nishiwaki	Level-set based topology optimization considering aesthetic feature
p0204	Peng Wei	Peng Wei, Lei He, Haijian Fan, Haoju Lin	A study on the level set band scheme for level set-based topology optimization methods

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<b>3B3</b>	Optimization for composites and laminates 3	Chair:	
p0033	Kuan Liang	Kuan Liang, Yangjun Luo, Xiaopeng Zhang	Tunable topology optimization of electrorheological composite plates considering semi-active control energy consumption
p0047	Nozomu Kogiso	Nozomu Kogiso, Taishi Kitazawa	Optimum design of stacking sequence and ply drop-off placement for laminated composite
p0019	Cheolwoong Kim	Cheolwoong Kim, Jaewook Lee, Jeonghoon Yoo	A study on local optima due to anisotropic behavior in the topological design of fiber-reinforced composite laminate structure

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<b>3C3</b>	Metaheuristics 2	Chair:	
p0069	Sol Ji Han	Sol Ji Han, Hoo Min Lee, Deok-Soo Kim, Gil Ho Yoon	Location optimization of pendulum dynamic vibration absorber using genetic algorithm
p0110	Jingyao Zhang	Jingyao Zhang, Lidong Zhu	Topology optimization of two-dimensional tensile trusses using different materials
p0177	Xu Yin	Xu Yin, Zhixun Yang, Jun Yan, Dongyan Shi, Donghui Cao, Yucheng Lu	Study on the automatic optimization design of the cross-sectional layout of an umbilical with layers based on the GA-GLM

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<b>3D3</b>	Data-driven and machine-learning approaches 8		Chair:
p0179	Taekyun Kim	Taekyun Kim, Tae Hee Lee	Significant input variable selection for multiple responses using modified PC-ANOVA based on principal component of residual
p0123	Sunyoung Park	Sunyoung Park, Yoojeong Noh, Young-Jin Kang, Jaechul Sim, Minsung Jang	Improved data-driven modelling for predicting ship engine performance
p0109	Mahesh Shankar	Mahesh Shankar, Palaniappan Ramu, Kalyanmoy Deb	Moving from opaque optimization to informed optimization: an investigation
<b>3E3</b>	Engineering design optimization 5		
p0085	Ungki Lee	Ungki Lee, Yoonkoo Lee, Nam-woo Kang	Multiscale design optimization of electric vehicles by analytical target cascading: from battery cell level to marketing level
p0207	Dongil Shin	Dongil Shin, Andrea Cupertino, Matthijs de Jong, Peter Steeneken, Miguel Bessa, Richard Norte	Ultralow dissipation nanomechanical resonator: inspired by spiderweb in nature and guided by Bayesian optimization
p0222	Yue Wang	Yue Wang, Hua Zhang, Zongliang Du, Weisheng Zhang, Xu Guo	Design of a stiffened space membrane structure using explicit topology optimization

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<b>3F3</b>	Optimization in engineering 3	Chair:
p0122	Minseok Kang	Minseok Kang, Mingi Kim, In Gwun Jang
p0030	Van-Son Pham	Van-Son Pham, Truong-Giang Nguyen, Quang-Hai Nguyen, Nhu-Van Nguyen
p0199	Sea Ryu	Sea Ryu, Juhyun Lee, Nadhie Juliawan, Tae Hee Lee, Yung Hwan Byun, Sangho Kim
p0241	Seyeon Kim	Seyeon Kim, Sanghoon Lee

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Determination of the optimal load condition for multi-receiver wireless power transfer systems

Analysis and assessment of bearings for small gas-turbine development

Study of thermal-fluid analysis of pitot-tube

Proposal of stress-based failure criterion for the calibration of simplified model of high burnout spent fuel rods