Scientific Program

Last updated: May 2, 2025, 11:12 am

19 May, Monday

Time:	**13:40 - 15:40**	**16:00 - 18:00**
Room A	A1: Novel approaches of topology optimization_1	A2: Novel approaches of topology optimization_4
Room B	B1: Data-driven, machine-learning and surrogate modeling based optimization_1	B2: Data-driven, machine-learning and surrogate modeling based optimization_3
Room C	C1: Data-driven, machine-learning and surrogate modeling based optimization_2	C2: Data-driven, machine-learning and surrogate modeling based optimization_4
Room D	D1: Novel approaches of topology optimization_2	D2: Novel approaches of topology optimization_5
Room E	E1: Novel approaches of topology optimization_3	E2: Novel approaches of topology optimization_6
Room F	F1: Novel approaches of shape optimization_1	F2: Novel approaches of shape optimization_2
Room G	G1: Optimization and manufacturing_1	G2: Optimization and manufacturing_2
Room H	H1: Novel approaches of layout and topology optimization_1	H2: Novel approaches of layout and topology optimization_2
Room I	I1: Robust and reliability-based optimization_1	I2: Robust and reliability-based optimization_2
Room J	J1: Multi-objective optimization_1	J2: Multi-objective optimization_2
Room K	K1: Multidisciplinary optimization_1	K2: Multidisciplinary optimization_2

20 May, Tuesday			
Time:	**9:00 - 10:40**	**11:00 - 13:00**	**15:30 - 17:30**
Room A	A3: Novel approaches of topology optimization_7	A4: Novel approaches of topology optimization_10	A5: Novel approaches of topology optimization_13
Room B	B3: Data-driven, machine-learning and surrogate modeling based optimization_5	B4: Data-driven, machine-learning and surrogate modeling based optimization_7	B5: Data-driven, machine-learning and surrogate modeling based optimization_9
Room C	C3: Data-driven, machine-learning and surrogate modeling based optimization_6	C4: Data-driven, machine-learning and surrogate modeling based optimization_8	C5: Data-driven, machine-learning and surrogate modeling based optimization_10
Room D	D3: Novel approaches of topology optimization_8	D4: Novel approaches of topology optimization_11	D5: Novel approaches of topology optimization_14
Room E	E3: Novel approaches of topology optimization_9	E4: Novel approaches of topology optimization_12	E5: Novel approaches of topology optimization_15
Room F	F3: Novel approaches of shape optimization_3	F4: Novel approaches of shape optimization_4	F5: Novel approaches of shape optimization_5
Room G	G3: Optimization and manufacturing_3	G4: Optimization and manufacturing_4	G5: Optimization and manufacturing_5
Room H	H3: Novel approaches of layout and topology optimization_3	H4: Novel approaches of layout and topology optimization_4	H5: Optimization of metamaterials_1
Room I	I3: Robust and reliability-based optimization_3	I4: Multidisciplinary optimization_4	I5: Multidisciplinary optimization_6
Room J	J3: Multi-objective optimization_3	J4: Multi-objective optimization_4	J5: Multi-physics optimization_1
Room K	K3: Multidisciplinary optimization_3	K4: Multidisciplinary optimization_5	K5: Multidisciplinary optimization_7

21 May, Wednesday	
Time:	**9:30 - 11:30**
Room A	A6: Novel approaches of topology optimization_16
Room B	B6: Data-driven, machine-learning and surrogate modeling based optimization_11
Room C	C6: Data-driven, machine-learning and surrogate modeling based optimization_12
Room D	D6: Novel approaches of topology optimization_17
Room E	E6: Novel approaches of topology optimization_18
Room F	F6: Novel approaches of shape optimization_6
Room G	G6: Optimization and manufacturing_6
Room H	H6: Optimization of metamaterials_2
Room I	I6: Multidisciplinary optimization_8
Room J	J6: Multi-physics optimization_2
Room K	K6: Optimization of materials_1

22 May, Thursday		
Time:	**9:00 - 10:40**	**11:00 - 13:00**
Room A	A7: Novel approaches of topology optimization_19	A8: Novel approaches of topology optimization_21
Room B	B7: Data-driven, machine-learning and surrogate modeling based optimization_13	B8: Data-driven, machine-learning and surrogate modeling based optimization_15
Room C	C7: Data-driven, machine-learning and surrogate modeling based optimization_14	C8: Optimization of dynamic problems_1
Room D	D7: Novel approaches of topology optimization_20	D8: Novel approaches of topology optimization_22
Room E	E7: Multiscale optimization_1	E8: Multiscale optimization_2
Room F	F7: Novel approaches of shape optimization_7	F8: Novel approaches of shape optimization_8
Room G	G7: Novel approaches of sizing optimization_1	G8: Novel approaches of sizing optimization_2
Room H	H7: Optimization of metamaterials_3	H8: Optimization of metamaterials_4
Room I	I7: General optimization topics_1	I8: General optimization topics_2
Room J	J7: Multi-physics optimization_3	J8: Multi-physics optimization_4
Room K	K7: Optimization of materials_2	K8: Optimization of materials_3

23 May, Friday		
Time:	**9:00 - 10:40**	**11:00 - 13:00**
Room A	A9: Novel approaches of topology optimization_23	A10: Novel approaches of topology optimization_25
Room B	B9: Data-driven, machine-learning and surrogate modeling based optimization_16	B10: Data-driven, machine-learning and surrogate modeling based optimization_17
Room C	C9: Optimization of dynamic problems_2	C10: Optimization of dynamic problems_3
Room D	D9: Novel approaches of topology optimization_24	D10: Novel approaches of topology optimization_26
Room E	E9: Multiscale optimization_3	E10: Multiscale optimization_4
Room F	F9: Novel approaches of shape optimization_9	F10: Novel approaches of shape optimization_10
Room G		G10: Novel approaches of sizing optimization_3
Room H		
Room I		
Room J		J10: Multi-physics optimization_5
Room K		K10: Optimization of materials_4

A1: Novel approaches of topology optimization_1

Session Chair: Prof. Grégoire Allaire (Ecole Polytechnique)

13:40 - 15:40, 19 May, Monday

A1-1:
Solving inverse design problems without topology optimization

*Ole Sigmund (Technical University of Denmark)
Weichen Li (University of Illinois Urbana-champaign)
Xiaojia Shelly Zhang (University of Illinois Urbana-champaign)

A1-2:
Strong C1-coupling Multi-Patch Isogeometric Topology Optimization of Complex Structures

*Xing Chen (Central South University)
Julien Yvonnet (Universite Gustave Eiffe)
Song Yao (Central South University)
Jie Hu (Guizhou University)
Yupeng Huang (Central South University)

A1-3:
Topology optimization of shell-infill structures with non-uniform thickness interfaces

*Chao Li (University of Technology Sydney)
Zhen Luo (University of Technology Sydney)

A1-4:
Isogeometric topology optimization using immersed boundary method and its software implementation for complex structures

*Xianda Xie (Nanchang University)
Shuting Wang (Huazhong University of Science and Technology)

A1-5:
A multiscale concurrent topology optimization method based on the material field series expansion model

*Zhaoyou Sun (Harbin Institute of Technology)
Yangjun Luo (Harbin Institute of Technology)

A1-6:
Human-Computer Interaction for Geometry-Driven Explicit Topology Optimization

*Shengqi Zhang (Dalian University of Technology)
Weisheng Zhang (Dalian University of Technology)

B1: Data-driven, machine-learning and surrogate modeling based optimization_1

Session Chair: Prof. Sanghoon Lee (Keimyung University)

13:40 - 15:40, 19 May, Monday

B1-1:

A constrained multi-fidelity Bayesian optimization method with application to design optimization

*Tucker Hartland (Lawrence Livermore National Laboratory)
Jingyi Wang (Lawrence Livermore National Laboratory)
Nai-yuan Chiang (Lawrence Livermore National Laboratory)
Jean-luc Peterson (Lawrence Livermore National Laboratory)
Cosmin G. Petra (Lawrence Livermore National Laboratory)
Jerome Solberg (Lawrence Livermore National Laboratory)

B1-2:

A Genetic Algorithm with a Prominent Evaluation by an Orthographic Projection and Pareto-Front-Modeling

*Mamoru Doi (Mitsubishi Electric Corporation)
Kenya Sugihara (Mitsubishi Electric Corporation)
Masao Arakawa (Waseda University)

B1-3:

Multi-Fidelity CFD-Based Design Optimisation of a Continuous Gravity Settler on Liquid–Liquid Separation

*Zinedine Khatir (The University of Leeds)

B1-4:

Task Planning and Optimization Method for Dual-Arm Space Manipulator Based on NSGA-II

*Haizhen Li (Beihang University)
Meng Han (Beihang University)
Jia Li (Beihang University)
Kun Xu (Beihang University)
Xilun Ding (Beihang University)

B1-5:

Sequential approximate multi-objective optimization with small data using Integration Nural Network approximator

Tomoki Takao (Osaka University)
*Yoshiharu Iwata (Osaka University)
Hidefumi Wakamatsu (Osaka University)
Masato Taki (Denso Corporation)
Shimgo Iwasaki (Denso Corporation)
Takashi Yoshiya (Denso Corporation)

C1: Data-driven, machine-learning and surrogate modeling based optimization_2

Session Chair: Prof. Qing Li (The University of Sydney)

13:40 - 15:40, 19 May, Monday

C1-1:

A study on multi-fidelity surrogate for multiple data sources

*Mingyu Lee (Korea Advanced Institute of Science and Technology (kaist))
Juyoung Lee (Korea Advanced Institute of Science and Technology (kaist))
Ikjin Lee (Korea Advanced Institute of Science and Technology (kaist))

C1-2:

A High-Precision Signal Analysis Framework for Bearing Fault Diagnosis Using hybrid RNN-CNN with Bayesian Optimization

*Jaewan Lee (Gyeongnam Aerospace & Defense Institute of Science and Technology)
Seonghawn Park (School of Mechanical Engineering, Gyeongsang National University)
Gyubeom Lim (R&D Center, Yunsung F&c)
Junghwan Kook (Gyeongnam Aerospace & Defense Institute of Science and Technology)

C1-3:

Design Optimization of Cross-flow Heat Exchanger Using Surrogate Model based on Neural Network

*Ci Song (Nanyang Technological University)
Xuan Liang (Nanyang Technological University)

C1-4:

On the topology optimization for all-solid-state battery designs considering charge-discharge processes

*Naoyuki Ishida (Kyoto University)
Kozo Furuta (Kyoto University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

C1-5:

Physics-Guided Neural Network-Assisted Optimizer for Reliability-Based Design Optimization: Application to Benchmark Problem of Iowa-RBDO

*Sangjun Jeong (Gyeongsang National University)
Jinhong Bang (Gyeongsang National University)
Jaehyeok Doh (Gyeongsang National University)

C1-6:

Machine Learning-Based Framework for Flaw Detection in Structures Using Strain Data from PyAnsys Simulation

*Raghul G (Indian Institute of Technology, Madras)
Pugazhenthi Thananjayan (Indian Institute of Technology, Madras)
Sundararajan Natarajan (Indian Institute of Technology, Madras)
Palaniappan Ramu (Indian Institute of Technology, Madras)

D1: Novel approaches of topology optimization_2

Session Chair: Dr. Lise Noel (Delft university of Technology)

13:40 - 15:40, 19 May, Monday

D1-1:
Topology Optimization using an Adaptive β Update Scheme in the Heaviside Projection Method

Won Seok Song (Hanyang University)
Haram Park (Hanyang University)
Jeonghyun Park (Hanyang University)
*Seungjae Min (Hanyang University)

D1-2:
Topology optimization of phase change materials (PCM) heatsinks with phase-field-method-based implicit solid-liquid boundary

*Sheng Pan (Kyoto University)
Shinji Nishiwaki (Kyoto University)
Kazuhiro Izui (Kyoto University)

D1-3:
Isogeometric Topology Optimization for Kirchhoff-Love Shell Structures Based on Subdivision Surfaces

*Qiong Pan (University of Science and Technology of China)
Xiaoya Zhai (University of Science and Technology of China)
Hongmei Kang (Soochow University)
Xiaoxiao Du (Beihang University)
Falai Chen (University of Science and Technology of China)

D1-4:
Local constraints in Topology Optimization with the Null Space Optimizer

*Dries Toebat (Ku Leuven)
Haoju Lin (Ku Leuven)
Florian Feppon (Ku Leuven)

D1-5:
T-splines-oriented isogeometric topology optimization for plate and shell structures with arbitrary geometries using Bézier extraction

*Xiao Zhang (Huazhong University of Science and Technology)
Mi Xiao (Huazhong University of Science and Technology)
Liang Gao (Huazhong University of Science and Technology)
Jie Gao (Huazhong University of Science and Technology)

D1-6:
Enhancing Variable Density Topology Optimization via Discrete Cosine Transform Compression Techniques

*Bo Xia (Tsinghua University)
Hongyuan Ren (Tsinghua University)
Yang Liu (Tsinghua University)
Pingzhang Zhou (Beijing Optfuture Technology Co., Ltd)
Jianbin Du (Tsinghua University)

E1: Novel approaches of topology optimization_3

Session Chair: Prof. Niels Aage (Technical University of Denmark)

13:40 - 15:40, 19 May, Monday

E1-1:
Deep Learning-Driven Topology Optimization using Principal Stress Information based on Assumed Source Point

*Jun Yan (Dalian University of Technology)
Mengfang Zhou (Dalian University of Technology)
Qi Xu (Dalian University of Technology)
Hongze Du (Dalian University of Technology)

E1-2:
Stress-constrained multiscale multi-material topology optimization

*Minh-ngoc Nguyen (Sejong University)
Soomi Shin (Pusan National University)
Hieu Ohuc Ban (Sejong University)
Dongkyu Lee (Sejong University)

E1-3:
Application of Topology Optimization of Link Mechanisms Based on Micropolar Elastic Materials to Industrial Machinery

*Ken Fukasawa (Advanced and Core Technology Center, Development Division, Komatsu Ltd.)
Yurika Sayo (Department of Mechanical Engineering, Graduate School of Engineering, The University of Tokyo)
Hiromitsu Emoto (Advanced and Core Technology Center, Development Division, Komatsu Ltd.)
Takayuki Yamada (Department of Mechanical Engineering, Graduate School of Engineering, The University of Tokyo)

E1-4:
Structural topology optimization of thermo-elastic problem cosidering temperature dependent Young's modulus

*Seongwon Bae (Lg Electronics)
Sunghoon Lim (Kyoto University)
Kozo Furuta (Kyoto University)
Kazuhiro Izui (Kyoto University)
Nishiwaki Shinji (Kyoto University)

E1-5:
ARCADE (Augmented Reality Computational Analysis and Design Envi-ronment): An interactive playground for real-time immersed topology optimization

*Alejandro M. Aragón (Delft University of Technology)
Hendrik J. Algra (Delft University of Technology)

E1-6:
Including AI Modeling of Predicted Preference in Human-in-the-Loop Topology Optimization

Dat Ha (MIT)
*Josephine Carstensen (MIT)

F1: Novel approaches of shape optimization_1

Session Chair: Prof. Niels Leergaard Pedersen (Technical University of Denmark, DTU Construct)

13:40 - 15:40, 19 May, Monday

F1-1:

LES -Based Multi-fidelity Optimization of Natural Laminar Flow Transonic Airfoils

*Ali Elham (University of Southampton)
Jae-wook Kim (University of Southampton)

F1-2:

Geometric optimization of a lithium-ion battery

*Richard Joly (Ecole Polytechnique)
Grégoire Allaire (Ecole Polytechnique)
Romain De-loubens (Totalenergies Onetech)

F1-3:

Multidisciplinary design optimization of X37-like vehicles based on distributed-centralized augmented Lagrangian coordination method

*Hua Su (Northwestern Polytechnical University)
Qi Liu (Northwestern Polytechnical University)
Songyu Liu (Northwestern Polytechnical University)
Chunlin Gong (Northwestern Polytechnical University)

F1-4:

Multidisciplinary design optimization of dumbbell-shaped spacecraft under irregular small feasible domains

*Qi Liu (Northwestern Polytechnical University)
Ran Zhang (Beijing Institute of Spacecraft System Engineering)
Hua Su (Northwestern Polytechnical University)
Weilin Liu (Beijing Institute of Spacecraft System Engineering)
Feng Gao (Beijing Institute of Spacecraft System Engineering)
Chunlin Gong (Northwestern Polytechnical University)

F1-5:

Model updating of thin-walled structures for local geometric parameter identification using parameter-free shape optimisation

*Marina Kamper (Ku Leuven)
Frank Naets (Ku Leuven)

F1-6:

Shape optimization for curvature minimization using boundary measure and domain integral of extended-normal's divergence

*Shuichi Tango (Toyota Systems Corporation)
Ryunosuke Koguchi (Toyota Systems Corporation)
Yoshiki Oshima (Toyota Systems Corporation)
Daisuke Iwamoto (Toyota Systems Corporation)
Hideyuki Azegami (Nagoya Industrial Science Research Institute)

G1: Optimization and manufacturing_1

Session Chair: Prof. Xu Guo (Dalian university of technology)

13:40 - 15:40, 19 May, Monday

G1-1:
Topology Optimization of Assembled Mechanical Metamaterials for Large-Scale structures

Ran Zheng (Central South University)
*Bing Yi (Central South University)
Long Liu (Hefei University)
Xiang Peng (Zhejiang University of Technology)

G1-2:
Incorporating Manufacturing Constraints into Topology Optimization for Additive Manufacturing Applications

*José Antonio Postigo Martín (University of Basque Country)
Alain Garaigordobil Jimenez (University of Basque Country)
Rubén Ansola Loyola (University of Basque Country)

G1-3:
Topology Optimization of AM-Produced Formwork for Lightweight Structure Fabrication

*Wei Tong (The Hong Kong Polytechnic University)
Jun Wu (Delft University of Technology)
Yiwei Weng (The Hong Kong Polytechnic University)

G1-4:
Fabrication-Oriented Optimal Design and Evaluation of Unimorph-Type Piezoelectric Energy Harvesters Using Level Set-Based Topology Optimization.

*Ken Miyajima (Osaka Research Institute of Industrial Science and Technology)
Shuichi Murakami (Osaka Research Institute of Industrial Science and Technology)
Takayuki Yamada (The University of Tokyo)

G1-5:
A stable and direction-free interlocking joint generation method for multi-component topology and shape optimization considering harmonic excitation force in two dimensions

*Yukun Feng (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

G1-6:
TPMS-based isotropic metamaterials inspired by topology optimization

*Yuping Han (Dalian University of Technology)
Yaguang Wang (Dalian University of Technology)
Zhan Kang (Dalian University of Technology)

H1: Novel approaches of layout and topology optimization_1

Session Chair: Dr. Ming Zhou (Altair Engineering)

13:40 - 15:40, 19 May, Monday

H1-1:
Multidimensional Structural Co-Optimization via Parameterized Level-Set and Stiffness Spreading: A Unified Framework for Solids, Shells and Beams

*Peng Wei (South China University of Technology)
Haoran Wu (South China University of Technology)
Jinjia Liu (South China University of Technology)

H1-2:
Multi-material topology optimization of elasto-plasticity considering material interfaces

*Shun Ogawa (The University of Tokyo)
Kazuo Yonekura (The University of Tokyo)
Katsuyuki Suzuki (The University of Tokyo)

H1-3:
Collaborative Topology Optimization of Multi-source Assemblies Enhanced by Machine Learning

*Yubo Liu (Dalian University of Technology)
Weisheng Zhang (Dalian University of Technology)

H1-4:
Field Driven Boundary-Adaptive Gradient Lattice Modeling for Optimized TPMS-Based Active Cooling Structures

*Changheng Liu (Shandong University)
Mulei Hao (Shandong University)
Quhao Li (Shandong University)
Yunfeng Luo (Shandong University)

H1-5:
On the topology optimization of frame structures considering principal directions

*Tokiha Yamaguchi (Kyoto University)
Kozo Furuta (Kyoto University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

H1-6:
Engineering method for topology optimization of spacecraft structures

*Shuanjun Liu (Beihang University)
Hai Huang (Beihang University)

I1: Robust and reliability-based optimization_1

Session Chair: Prof. Zeng Meng (Hefei university of technology)

13:40 - 15:40, 19 May, Monday

I1-1:

Optimal design of spherical like grid shells with uncertain nodal positions

*Janos Logo (Budapest University of Technology and Economics)
Bálint Tóth (Budapest University of Technology and Economics, Politecnico di Milano)
Matteo Bruggi (Politecnico di Milano)

I1-2:

A local optimum is still a wonderful optimum: multiplicity of essential optima in structural problems and instability of optimization paths

*Yoshiki Fukada (Toyota Motor Corporation)
Haruki Minagawa (Quint Corporation)
Chikara Nakazato (Quint Corporation)

I1-3:

Research on the requirements to be integrated in the topology optimization of industrial additive manufactured lightweight structures

*Katrin Weider (University of Wuppertal)
Axel Schumacher (University of Wuppertal)

I1-4:

Robust topology optimization considering probabilistic porosity defects in additive manufacturing

*Yooseong Park (Delft University of Technology)
Omid Nejadseyfi (Delft University of Technology)
Matthijs Langelaar (Delft University of Technology)

I1-5:

Topology Optimization with Uncertain Transient Loads Based on Unit Impulse Response Functions

*Delin Cao (Dalian University of Technology)
Zeng Yan (Dalian University of Technology)
Gang Li (Dalian University of Technology)

I1-6:

Robust topology optimization accounting for uncertain microstructural changes

*Hugo Masson (Navier Lab, Ecole Nationale Des Ponts Et Chaussées, Univ Gustave Eiffel, CNRS & Inria, Cmap, Ecole Polytechnique, IPP)
Michael Peigney (Navier Lab, Ecole Nationale Des Ponts Et Chaussées, Univ Gustave Eiffel, CNRS)
Enora Denimal Goy (Inria, Cmap, Ecole Polytechnique, IPP)

J1: Multi-objective optimization_1

Session Chair: Prof. Jeonghoon Yoo (Yonsei University)

13:40 - 15:40, 19 May, Monday

J1-1:
Topology Optimization of Compliant Compensators Incorporating Translational and Revolute Flexure Hinges
*Chih-hsing Liu (National Cheng Kung University)
Ping-teng Hung (National Cheng Kung University)

J1-2:
Additive Manufacturing Cost Minimization using Multi-Objective Topology and Build Orientation Optimization
*Il Yong Kim (Queen's University)
Luke Crispo (Queen's University)

J1-3:
Thermo-Elastic Multi-Material Multi-Joint Topology Optimization
*Shayan Jalayer (Queen's University)
Il Yong Kim (Queen's University)

J1-4:
Multi-layered Topology Optimization for Planar Link Mechanisms: Integrating Layout and Structural Design
*Yurika Sayo (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

J1-5:
Bi-continuous Structural Battery Design Using a Virtual Temperature Constrained Topology Optimization Framework
*Ahmad Najafi (Drexel University)
Jonathan Gorman (Drexel University)
Nolan Black (Drexel University)
Reza Pejman (Drexel University)

J1-6:
Topology Optimization for Enhanced Tolerance Robustness in Mechanical Systems
*Simon Vanpaemel (Ku Leuven)
Parsa Rostami (Ku Leuven)
Martijn Vermaut (Ku Leuven)
Frank Naets (Ku Leuven)

K1: Multidisciplinary optimization_1

Session Chair: Dr. Changyoung Yuhn (Toyota Central R&D Labs., Inc.)

13:40 - 15:40, 19 May, Monday

K1-1:

Loopwise Route Representation-based Topology Optimization for Vehicle Routing Problems

*Geunu Kim (Korea Advanced Institute of Science and Technology (kaist))
In Gwun Jang (Korea Advanced Institute of Science and Technology (kaist))

K1-2:

Optimization of IMRT fluence map with dose-volume constraints using an S-shape function

*Sang Won Kang (Hanyang University)
Gil Ho Yoon (Hanyang University)
Ji Hun Kim (Yonsei University College of Medicine)

K1-3:

Level-Set Topology Optimization of Cooling Channels in Heat Sinks with Phase-Change Materials

*Alexandre Guibert (University of California San Diego)
Murtaza Bookwala (University of California San Diego)
H. Alicia Kim (University of California San Diego)

K1-4:

Topology Optimization Incorporating Elasticity for Linear Optimal Control of a Single-Link Robot Arm

*Masaki Noda (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

K1-5:

Coupled topology and parametric optimization for electrical machine design with body-fitted meshes

*Thomas Gauthey (Safran, Centralesupélec, Université Paris-saclay, Cnrs, Group of Electrical Engineering Paris , Cmap Ecole Polytechnique)
Grégoire Allaire (Cmap, Ecole Polytechnique, 91128 Palaiseau)
Felipe Bordeu (Safran Tech, Magny-les-hameaux)
Maya Hage Hassan (Centralesupélec, Université Paris-saclay, Cnrs, Group of Electrical Engineering Paris)
Xavier Mininger (Centralesupélec, Université Paris-saclay, Cnrs, Group of Electrical Engineering Paris)
Rémy Ul (Safran Additive Manufacturing Campus, 33187, Le Haillan)

K1-6:

A Fully Eulerian Framework for Transient Fluid-Structure Topology Optimization

*Ryohei Katsumata (Nagoya University)
Koji Nishiguchi (Nagoya University, Riken)
Hiroya Hoshiba (Nagoya University)
Junji Kato (Nagoya University)

A2: Novel approaches of topology optimization_4

Session Chair: Prof. Ole SIgmund (Technical University of Denmark)

16:00 - 18:00, 19 May, Monday

A2-1:
Self-adjoint objective functions when optimizing non-linear models

*Grégoire Allaire (Ecole Polytechnique)
Théodore Cherrière (Centralesupélec, Université Paris-saclay)
Thomas Gauthey (Centralesupélec, Université Paris-saclay)
Maya Hage Hassan (Centralesupélec, Université Paris-saclay)
Xavier Mininger (Centralesupélec, Université Paris-saclay)

A2-2:
Three-dimensional Multi-Material Topology Optimization of Energy-absorbing Structures

*Daiki Watanabe (Toyota Technological Institute)
Masatoshi Shimoda (Toyota Technological Institute)

A2-3:
Computationally efficient topology optimization of plate and shell structures using isogeometric methods

*Philip Luke Karuthedath (Indian Institute of Technology Roorkee)
Abhinav Gupta (Avkalan Labs Pvt. Ltd, Sn, Hp)
Bhagath Mamindlapelly (Indian Institute of Technology Roorkee)
Rajib Chowdhury (Indian Institute of Technology Roorkee)

A2-4:
Floating Projection on Stress Minimization of Three-Dimensional Continuum Structures

*Xiaodong Huang (Swinburne University of Technology)
Xuhao Cheng (Swinburne University of Technology)
Yuhan Gong (Swinburne University of Technology)

A2-5:
Designing periodic topologies of structures under self-weight load

*Katarzyna Tajs-zielińska (Cracow University of Technology)

B2: Data-driven, machine-learning and surrogate modeling based optimization_3

Session Chair: Prof. Yoshiharu Iwata (Osaka University)

16:00 - 18:00, 19 May, Monday

B2-1:
Design optimization of billet shape and die shape in cold free extrusion

*Masayoshi Kinoshita (Ykk Corporation)
Satoshi Kitayama (Kanazawa University)
Peng Li (Ykk Corporation)
Yuji Kirita (Ykk Corporation)
Sakae Sato (Ykk Corporation)

B2-2:
Multi-objective optimization for minimizing warpage and cycle time in vibration assisted injection molding

*Kenta Yamaya (The Graduate School of Kanazawa University)
Satoshi Kitayama (The Kanazawa University)
Yusuke Yamazaki (Sodick Co., Ltd.)
Yoshikazu Kubo (Sodick Co., Ltd.)
Shuji Aiba (Sodick Co., Ltd.)

B2-3:
A general bi-level differentiable learning framework integrating model training and sensor placement optimization for physical field reconstruction

*Xu Liu (Chinese Academy of Military Science)
Wei Peng (Chinese Academy of Military Science)
Xiaoya Zhang (Chinese Academy of Military Science)
Xianqi Chen (Chinese Academy of Military Science)
Wen Yao (Chinese Academy of Military Science)
Ning Wang (Chinese Academy of Military Science)
Tingsong Jiang (Chinese Academy of Military Science)

B2-4:
Adaptive Sampling Algorithm with Dual Acquisition Strategy for Constrained Surrogate-Based Optimization Problems

*Pavel Eremeev (Ku Leuven)
Hendrik Devriendt (Ku Leuven)
Frank Naets (Ku Leuven)

B2-5:
A stochastic optimization strategy to compute convex component solution spaces for generic performance functions

*Eduardo Rodrigues Della Noce (Technical University of Munich)
Markus Zimmermann (Technical University of Munich)

B2-6:
A Multi-Objective Approach to Identify Fracture Parameters of Spent Nuclear Fuel Cladding with Reoriented Hydrides

Seyeon Kim (Keimyung University)
*Sanghoon Lee (Keimyung University)

C2: Data-driven, machine-learning and surrogate modeling based optimization_4

Session Chair: Dr. Yuichi Kuya (Kyushu University)

16:00 - 18:00, 19 May, Monday

C2-1:
Multi fidelity parallel Bayesian optimization for efficient budget utilization

*Jaeyoung Jeong (Korea Advanced Institute of Science and Technology)
Mingyu Lee (Korea Advanced Institute of Science and Technology)
Ungki Lee (Korea University Sejong Campus)
Ikjin Lee (Korea Advanced Institute of Science and Technology)

C2-2:
Generative AI-driven Inverse Design of Elastic Metasurface for Anomalous Refraction with Full Transmission

*Taehun Kim (Department of Mechanical Engineering, Seoul National University)
Donghyu Lee (Department of Mechanical Engineering, Seoul National University)
Soo-ho Jo (Department of Mechanical, Robotics and Energy Engineering, Dongguk University)
Byeng Dong Youn (Department of Mechanical Engineering, Seoul National University)

C2-3:
Material microstructure design empowered by Generative AI

*Xiaoyang Zheng (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

C2-4:
Designing High Quality Factor Nanomechanical Resonators via Bayesian Optimization

*Dongil Shin (Postech)

C2-5:
An Integrated Framework Combining Random Inputs and Hybrid Temporal Networks for Variable-Length Industrial Time-Series Prediction

*Hongze Du (Dalian University of Technology)
Jun Yan (Dalian University of Technology)
Qi Xu (Ningbo Institute of Dalian University of Technology)
Yufeng Bu (Dalian University of Technology)

C2-6:
Physics-Informed Neural Network-Assisted Optimizer for Quickly Searching Global Minima in Global Optimization Problems: Application to Calibration of Rubber Degradation Model

*Jinhong Bang (Gyeongsang National University)
Jaehyeok Doh (Gyeongsang National University)

D2: Novel approaches of topology optimization_5

Session Chair: Prof. Oded Amir (Technion - Israel Institute of Technology)

16:00 - 18:00, 19 May, Monday

D2-1:
PolyPlas: A novel topology optimization software for elastoplasticity with unstructured polygonal finite elements

*Emily Alcazar (Princeton University)
Jonathan B. Russ (Princeton University)
Glaucio H. Paulino (Princeton University)

D2-2:
On the Performance of a Quantum Annealing-Assisted Framework for Topology Optimization in Truss and Continuum Structures

*Naruethep Sukulthanasorn (Tohoku University)
Jensen Xiao (Tohoku University)
Koya Wagatsuma (Tohoku University)
Reika Nomura (Tohoku University)
Shuji Moriguchi (Tohoku University)
Kenjiro Terada (Tohoku University)

D2-3:
One-shot Parareal Method for Topology Optimisation

*Magnus Appel (University of Southern Denmark)
Joe Alexandersen (University of Southern Denmark)

D2-4:
Optimal topologies considering the influence of the microrotation

*Soha Takigawa (Kyoto University)
Jike Han (Kyoto University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

D2-5:
Multi-material topology optimization based on quantum annealing

*Kenshin Nakano (Nagoya University)
Hiroya Hoshiba (Nagoya University)
Koji Nishiguchi (Nagoya University)
Shiori Haga (Housei University)
Yoshihito Yamamoto (Housei University)
Junji Kato (Nagoya University)

E2: Novel approaches of topology optimization_6

Session Chair: Prof. Jun Yan (Dalian University of Technology)

16:00 - 18:00, 19 May, Monday

E2-1:

ANN-Based Topology Optimization of Path-Generating Linkage Mechanisms with Diverse Joint Types

*Gang-won Jang (Sejong University)
Chan Yeong Park (Sejong University)

E2-2:

Topology Optimization of a Large Space Structure with Assembly Modules

*Jialiang Sun (Nanjing University of Aeronautics and Astronautics)
Dingfeng Ding (Nanjing University of Aeronautics and Astronautics)

E2-3:

A two-level structural topology and discrete size optimization method with the extended approximation concept

*Jia Li (Beihang University)
Wenda Tang (Beihang University)
Hai Huang (Beihang University)

E2-4:

Layout Oriented Topology Optimization in Multi Objective Structural Design

*Tatsuhito Yoshida (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

E2-5:

An integrated Shape-topology-stiffener layout optimization approach for thin-walled structures

*Hualin Zhang (Northwestern Polytechnical University)
Weihong Zhang (Northwestern Polytechnical University)
Shouyu Cai (Zhengzhou University)

F2: Novel approaches of shape optimization_2

Session Chair: Prof. Ali Elham (University of Southampton)

16:00 - 18:00, 19 May, Monday

F2-1:
Physics-informed generative design framework for efficient conceptual design

*Geonwoo Lee (Korea Advanced Institute of Science and Technology)
Mingyu Lee (Korea Advanced Institute of Science and Technology)
Ikjin Lee (Korea Advanced Institute of Science and Technology)

F2-2:
Gaussian Process Model nested Polynomial Chaos Expansion based Robust Shape Optimization scheme for Aircraft Cabin Noise Reduction

*Thanasak Wanglomklang (Ecole Centrale de Lyon)
Koji Shimoyama (Kyushu University)
Sébastien Besset (Ecole Centrale de Lyon)
Frédéric Gillot (Ecole Centrale de Lyon)

F2-3:
Redesigning Design Spaces Using Variational Autoencoders

*Jonghyun Shin (Korea Institute of Industrial Technology)
Kangkuk You (Seoul National University)
Yu-eop Kang (Seoul National University)
Jongwon Choi (Chung-ang University)
Shinkyu Jeong (Kyung Hee University)
Sanga Lee (Korea Institute of Industrial Technology)

F2-4:
Efficient Nonlinear Differentiable Layout Optimization of Heat-generating Components on One Satellite Cabin Plate

*Xianqi Chen (Defense Innovation Institute, Chinese Academy of Military Science)
Wen Yao (Defense Innovation Institute, Chinese Academy of Military Science)
Xingchen Li (Defense Innovation Institute, Chinese Academy of Military Science)
Xiaoya Zhang (Defense Innovation Institute, Chinese Academy of Military Science)
Ning Yang (Defense Innovation Institute, Chinese Academy of Military Science)
Xu Liu (Defense Innovation Institute, Chinese Academy of Military Science)
Weien Zhou (Defense Innovation Institute, Chinese Academy of Military Science)

F2-5:
Multiscale Shape Optimization of Porous Composites Based on Biological Microstructures

*Takeya Sakai (Graduate School of Engineering, Toyota Technological Institute)
Masatoshi Shimoda (Toyota Technological Institute)

G2: Optimization and manufacturing_2

Session Chair: Prof. Bing Yi (Central South University)

16:00 - 18:00, 19 May, Monday

G2-1:
Combined projection-based manufacturing rules in topology optimization

*Vanessa Cool (Ku Leuven)
Amin Mirabdollah (Ku Leuven)
Karim Asrih (Ku Leuven)
Claus Claeys (Ku Leuven)
Elke Deckers (Ku Leuven)

G2-2:
Geometrical Feature Control in Topology Optimization By Using Additional Physical Models

*Takayuki Yamada (The University of Tokyo)

G2-3:
Topology Optimization for Multi-Axis Additive Manufacturing Considering Overhang and Anisotropy

*Seungheon Shin (Ulsan National Institute of Science and Technology)
Hayoung Chung (Ulsan National Institute of Science and Technology)

G2-4:
A general method based on the Dirichlet-Laplacian problem for connectivity in topology optimization

*Alberto Donoso (Universidad de Castilla La Mancha)
Ernesto Aranda (Universidad de Castilla La Mancha)
David Ruiz (Universidad de Castilla La Mancha)

G2-5:
Length Scale Control via Derivable Skeletons for Topology Optimization

Jiaqi Huang (Harbin Engineering University)
*Jikai Liu (Shandong University)

H2: Novel approaches of layout and topology optimization_2

Session Chair: Prof. Peng Wei (South China University of Technology)

16:00 - 18:00, 19 May, Monday

H2-1:

A novel optimization method using movable anisotropic basis functions for stiffener layout

*Dingkun Chen (South China University of Technology)
Peng Wei (South China University of Technology)

H2-2:

A Smooth Maximum Regularization Approach for Robust Topology Optimization in the Ground Structure Setting

*Lorran Oliveira (Federal University of Alagoas)
Emily Alcazar (Princeton University)
Fernando Senhora (Georgia Institute of Technology)
Adeildo Ramos Jr. (Federal University of Alagoas)
Gláucio Paulino (Princeton University)

H2-3:

Topology optimization of lattice-stiffener hybrid core for composite sandwich panel and experimental verification

*Yongbin Huang (Northwestern Polytechnical University)
Tong Gao (Northwestern Polytechnical University)
Pingchu Fang (Northwestern Polytechnical University)

H2-4:

Layout Optimization of Rib Stiffeners of Casting Structures

Zhifan Luo (Altair Engineering)
*Ming Zhou (Altair Engineering)

H2-5:

Intermediate density topology optimization applied to beam layout optimization in concrete slabs

*Simone Maria Peter (Massachusetts Institute of Technology)
Caitlin Mueller (Massachusetts Institute of Technology)
Josephine Carstensen (Massachusetts Institute of Technology)

H2-6:

Lie Spherical Geometry for Shape Optimization of Latticed Shells

*Makoto Ohsaki (Kyoto University)
Ryo Watada (Osaka Sangyo University)
Kentaro Hayakawa (Nihon University)
Kohei Kabaki (Kyoto University)

I2: Robust and reliability-based optimization_2

Session Chair: Prof. Dongjin Lee (Hanyang University)

16:00 - 18:00, 19 May, Monday

I2-1:

Numerical and physical robustness using pointwise geometrical uncertainty in topology optimization

*Justus Karnath (Institute For Structural Mechanics In Lightweight Design, Hamburg University of Technology)
Benedikt Kriegesmann (Institute For Structural Mechanics In Lightweight Design, Hamburg University of Technology)
Claus Bech Wittendorf Pedersen (Dassault Systèmes Deutschland Gmbh)

I2-2:

Robust Topology Optimization for Dynamic Systems under Uncertainties

*Zeng Meng (Hefei University of Technology)
Zixuan Tian (Hefei University of Technology)

I2-3:

Topology Optimization with Stochastic Geometric Perturbations for Optical Waveguide Design

*Philip Elbek (Technical University of Denmark)
Niels Aage (Technical University of Denmark)
Rasmus Ellebæk Christiansen (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

I2-4:

A Stochastic Linear Programming Framework for Multiobjective Planning of Electrified Powertrains Mix in Light-Duty Vehicles

*Karim Hamza (Toyota Motor North America R&D)
Kenneth Laberteaux (Toyota Motor North America R&D)

I2-5:

Spatiotemporal-dependent Structural Reliability Analysis Based on Reduced Order-informed Surrogate Model for Wind Turbines

Jianhao Fang (Zhejiang University)
*Weifei Hu (Zhejiang University)
Jiquan Yan (Zhejiang University)
Tongzhou Zhang (Zhejiang University)
Sichuang Cheng (Zhejiang University)
Zhenyu Liu (Zhejiang University)
Jianrong Tan (Zhejiang University)

I2-6:

Robust Design of Cable-net Antenna Structures with a Sampling-based Interval Analysis Technique

*Naigang Hu (Xidian University)
Baoyan Duan (Xidian University)
Wanye Xu (Xidian University)
Yiqun Zhang (Xidian University)

J2: Multi-objective optimization_2

Session Chair: Prof. IL YONG KIM (Queen's University)

16:00 - 18:00, 19 May, Monday

J2-1:
Topology Optimization for Suppressing Relative Position Changes Due to Thermal Deformation

*Shoei Ishioka (The University of Tokyo)
Naoki Murai (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

J2-2:
Manufacturing Oriented Bead Optimization for Shell Structure via Moving Morphable Bead (MMB) Approach

*Shaopeng Yan (Dalian University of Technology)
Weisheng Zhang (Dalian University of Technology)

J2-3:
Enhancing Data-driven Topology Design Methodology with Adaptive Body-fitted Mesh using SDF-based Mutation Module for 2D Strongly Nonlinear Optimization Problem

*Jun Yang (Waseda University)
Shintaro Yamasaki (Waseda University)

J2-4:
Internal Contact in Topology Optimization: Introducing "HuHu-LuLu" regularization and an improved Third Medium Contact Topology Optimization framework in 3D

*Andreas Henrik Frederiksen (DTU)
Anna Dalklint (DTU)
Ole Sigmund (DTU)
Konstantinos Poulios (DTU)

J2-5:
Nonlinear electromechanical topology optimization method for stretchable electronic interconnect structures

*Yunfeng Luo (Shandong University)
Shiyuan Qu (Huazhong University of Science and Technology)
Shutian Liu (Dalian University of Technology)
Yongan Huang (Huazhong University of Science and Technology)

J2-6:
A Novel PDE-Driven Model for Visibility Evaluation in Structural Design

*Xiao Huang (The University of Tokyo)
Kaiwen Guan (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

K2: Multidisciplinary optimization_2

Session Chair: Dr. Yuki Sato (Toyota Central R&D Labs., Inc.)

16:00 - 18:00, 19 May, Monday

K2-1:
An Exploration of Embedded TO into MDO

*Marek Slebioda (Delft University of Technology)
Matthijs Langelaar (Delft University of Technology)
Gianfranco La Rocca (Delft University of Technology)

K2-2:
Toward Ultralightweight Porous Heat Sink Design with Low Electromagnetic Interference via Multiphysics Metaheuristic-Aided Structural Topology Optimization

*Musaddiq Al Ali (Toyota Technological Institute)
Masatoshi Shimoda (Toyota Technological Institute)
Brahim Benaissa (Ceats Center)
Masakazu Kobayashi (Toyota Technological Institute)
Tsunehiro Takeuchi (Toyota Technological Institute)
Sina Ranjbar (Fraunhofer-institut Fur Photonische Mikrosysteme)
Hanif Mohammadi (Institut Fur Nanostrukturtechnologie Und Analytik)
Ameer Al-shawk (Stellantis North America Headquarter)

K2-3:
Deep learning-based topology optimization for shortest path problems

*Jeonghun Kim (Korea Advanced Institute of Science and Technology (kaist))
Geunu Kim (Korea Advanced Institute of Science and Technology (kaist))
Changyeong Kim (Korea Advanced Institute of Science and Technology (kaist))
In Gwun Jang (Korea Advanced Institute of Science and Technology (kaist))

K2-4:
Post-processing of the loop-wise route representation-based topology optimization for shortest path problems

*Sanghoon Park (Korea Advanced Institute of Science and Technology)
Geunu Kim (Korea Advanced Institute of Science and Technology)
In Gwun Jang (Korea Advanced Institute of Science and Technology)

K2-5:
Method for the coordinated Topology Optimization of links of Open Kinematic Chains

*Felix Janzik (University of Wuppertal)
Axel Schumacher (University of Wuppertal)
Beate Bender (Ruhr-university Bochum)
Eike Uttich (Ruhr-university Bochum)

A3: Novel approaches of topology optimization_7

Session Chair: Prof. Xiaodong Huang (Swinburne University of Technology)

9:00 - 10:40, 20 May, Tuesday

A3-1:
Distributed-Element Filter Design Based on Data-driven Topology Design

*Yuyang Chen (Waseda University)
Shintaro Yamasaki (Waseda University)

A3-2:
Topology Optimization of Compatible Thermal Microstructures

*Tianjie Chen (University of Science and Technology of China)
Xiaoya Zhai (University of Science and Technology of China)
Ligang Liu (University of Science and Technology of China)
Xiao-ming Fu (University of Science and Technology of China)

A3-3:
Accelerated Level Set Topology Optimization with GPU Computing and Adaptive Mesh Refinement

*János Plocher (Ansys Germany Gmbh)
Sebastian Stahn (Ansys Germany Gmbh)
Matthew Gargani (Ansys Inc.)

A3-4:
Improving local optima exploration in topology optimization using multi-fidelity framework

*Jihwan Park (Korea Advanced Institute of Science and Technology)
Mingyu Lee (Korea Advanced Institute of Science and Technology)
Ikjin Lee (Korea Advanced Institute of Science and Technology)

A3-5:
Stress-constrained topology optimization based on the velocity field level set method

*Wei Cheng (Dalian University of Technology)
Yaguang Wang (Dalian University of Technology)
Xiaopeng Zhang (Dalian University of Technology)

B3: Data-driven, machine-learning and surrogate modeling based optimization_5

Session Chair: Prof. Wataru Yamazaki (Nagaoka University of Technology)

9:00 - 10:40, 20 May, Tuesday

B3-1:

Probabilistic Calibration of Safety Factors using Multi-Target-Reliability-Based Design Optimization

*Jiquan Yan (Zhejiang University)
Weifei Hu (Zhejiang University)
Tongzhou Zhang (Zhejiang University)
Jianhao Fang (Zhejiang University)
Feng Zhao (Zhejiang University)
Jianrong Tan (Zhejiang University)

B3-2:

Improving Prediction Accuracy for a Distributional Data Using Multi-output Gaussian Process

*Chulhyun Hwang (Korea Advanced Institute of Science and Technology)
Young Jin Lee (Korea Advanced Institute of Science and Technology)
Hansol Lee (Korea Advanced Institute of Science and Technology)
Sung Jin Kim (Korea Advanced Institute of Science and Technology)
Ikjin Lee (Korea Advanced Institute of Science and Technology)

B3-3:

Multi-scale & Multi-objective optimization of microwave absorbing sandwich structures through the gamut of effective properties generated by topology optimization

*Dohun Lee (Gwangju Institute of Science and Technology)
Yonghwa Ji (Gwangju Institute of Science and Technology)
Jaewook Lee (Gwangju Institute of Science and Technology)

B3-4:

Spline Dimensional Decomposition with interpolation–based Optimal Knot Selection for Stochastic Dynamic Analysis

*Yeonsu Kim (Hanyang University)
Junhan Lee (Hanyang University)
Dongjin Lee (Hanyang University)

B3-5:

Level Set Topology Optimization with Electro-Chemo-Mechanical Modeling for Designing Lithium-Ion Battery Cells

*Filippo Agnelli (University of California San Diego)
Murtaza Bookwala (University of California San Diego)
Andreas Neofytou (University of California San Diego)
Alexandre T. R. Guibert (University of California San Diego)
H. Alicia Kim (University of California San Diego)

C3: Data-driven, machine-learning and surrogate modeling based optimization_6

Session Chair: Prof. Dongil Shin (POSTECH)

9:00 - 10:40, 20 May, Tuesday

C3-1:

Optimizing Calibration Coefficient in HVAC Simulation models Using Spatio-Temporal Reinforcement Learning

*Minjun Cho (Pusan National University)
Yoojeong Noh (Pusan National University)
Young-jin Kang (Pusan National University)
Noma Park (Lg Electronics)
Soonyong Choi (Lg Electronics)

C3-2:

Data-Driven Multi-Objective Optimization to Enhance Mechanical Performance of Additively Manufactured Al-Si-Cu Alloy at Elevated Temperature

*Mohan Raj Murugesan (Indian Institute of Technology, Madras)
Jayaganthan Rengaswamy (Indian Institute of Technology, Madras)
Palaniappan Ramu (Indian Institute of Technology, Madras)

C3-3:

Decoupled Dynamics Framework with Neural Fields for 3D Spatio-temporal Prediction of Vehicle Collisions

*Sanghyuk Kim (KAIST)
Minsik Seo (Narnia Labs)
Namwoo Kang (Narnia Labs, KAIST)

C3-4:

Morphology Learning-Based Scaffold Optimization for Cell Growth

*Weiming Wang (Nanjing University of Science and Technology)
Yanhao Hou (The University of Manchester)
Renbo Su (The University of Manchester)
Weiguang Wang (The University of Manchester)
Charlie C.l. Wang (The University of Manchester)

C3-5:

Topology Optimization of Thin-Walled Crash Structures Using Local State and Machine Learning

*Jirair Aroyan (Volkswagen Ag)
Johannes Sperber (Volkswagen Ag)
Christopher Ortmann (Volkswagen Ag)
Axel Schumacher (University of Wuppertal)

D3: Novel approaches of topology optimization_8

Session Chair: Prof. Seungjae Min (Hanyang University)

9:00 - 10:40, 20 May, Tuesday

D3-1:
TEST: Efficient topopt with stress constraints

*Oded Amir (Technion - Israel Institute of Technology)

D3-2:
Scaled Boundary Finite Element Method Approach to Minimum Thermal Compliance Topology Optimization

*Mohammed Saif Siddiqui (Indian Institute of Technology Madras)
Sourav Rakshit (Indian Institute of Technology Madras)

D3-3:
Multi-Fidelity Optimisation of Landing Gear in Spacecraft

*Kian Das (Queen Mary, University of London)
Vassili Toropov (Queen Mary, University of London)

D3-4:
Distributed optimization with informed decomposition: extension to 3d structures with asymmetrical 2-interface elements

*Endress Felix (Technical University of Munich, Tum School of Engineering and Design, Laboratory For Product Development and Lightweight Design)
Markus Zimmermann (Technical University of Munich, Tum School of Engineering and Design, Laboratory For Product Development and Lightweight Design)

D3-5:
An energy-based approach for improving interfaces of multi-material topology optimization

*Yi Wu (University of Science and Technology Beijing)

E3: Novel approaches of topology optimization_9

Session Chair: Prof. Josephine Carstensen (MIT)

9:00 - 10:40, 20 May, Tuesday

E3-1:
Shape and topology optimization of regions supporting boundary conditions

Eric Bonnetier (Université Grenoble Alpes)
Carlos Brito-pacheco (Université Grenoble Alpes)
*Charles Dapogny (Université Grenoble Alpes)
Rafael Estevez (Grenoble Inp)

E3-2:
A Joint-Driven Moving Morphable Component approach for Explicit Topology Optimization

*Jiaqi Xu (Dalian University of Technology)
Chuhui He (Dalian University of Technology)
Wendong Huo (Dalian University of Technology)
Chang Liu (Dalian University of Technology)
Xu Guo (Dalian University of Technology)

E3-3:
Lightweight Design of Aircraft Landing Gear considering Transient Fatigue Life constraints

*Jiale Shi (Shandong University)
Yongxin Qu (Shandong University)
Quhao Li (Shandong University)
Yunfeng Luo (Shandong University)

E3-4:
Concurrent topology and fiber orientation optimization method with principal stress orientation interpolation

*Hongling Ye (Beijing University of Technology)
Yongjia Dong (Beijing University of Technology)

E3-5:
Relation between stress relaxation and bifurcation points on topology optimization with stress and linear buckling constraints.

*Martín Rey (University of A Coruña)
Iván Couceiro (University of A Coruña)
José París (University of A Coruña)
Luis Ramírez (University of A Coruña)
Fermín Navarrina (University of A Coruña)

F3: Novel approaches of shape optimization_3

Session Chair: Prof. Yiqiang Wang (Dalian University of Technology)

9:00 - 10:40, 20 May, Tuesday

F3-1:
Shape optimization of stress in MEMS gyroscopes using equivalent static loads

*Simon Pfingstl (Robert Bosch Gmbh)
Marian Hörsting (Robert Bosch Gmbh)
Peter Degenfeld-schonburg (Robert Bosch Gmbh)
Matthias Wenzel (Robert Bosch Gmbh)

F3-2:
Systematic Design Methodology for Enhancing Speakerphone Vibroacoustic Performance

*Taegyun Noh (Gyeongsang National University)
Peter R. Andersen (Gn Audio A/S & Jabra)
Seongyeol Goo (Korea Atomic Energy Research Institute)
Junghwan Kook (Gyeongsang National University)

F3-3:
On T-head Design for Preloaded Bolts

*Niels Leergaard Pedersen (Technical University of Denmark, Dtu Construct)

F3-4:
Challenging parameterizations for unit cells and lattice structures in shape optimization using implicitly defined geometries

*Jorge Luis Barrera Cruz (Lawrence Livermore National Laboratory)
Anurag Bhattacharyya (Lawrence Livermore National Laboratory)
Mathias Schmidt (Lawrence Livermore National Laboratory)
Kenny Swartz (Lawrence Livermore National Laboratory)
Daniel Tortorelli (Lawrence Livermore National Laboratory)

F3-5:
Parametric shape design of nitinol anti-chiral auxetic stents for optimal compression ratio and surface covering

*Clement Chan (Keio University)
Frederic Gillot (Ecole Centrale de Lyon, Laboratoire de Tribologie Et de Dynamique Des Systemes)
Norihisa Miki (Keio University)

G3: Optimization and manufacturing_3

Session Chair: Prof. Jikai Liu (Shandong University)

9:00 - 10:40, 20 May, Tuesday

G3-1:
Constitutive optimization: a new design space

*Yang Liu (Queen Mary University of London)
Zuyu Li (Guangdong University of Petrochemical Technology)
Jianbin Du (Tsinghua University)
Wei Tan (Queen Mary University of London)

G3-2:
Topology optimization for wire-arc directed energy deposition considering environmental impact

Mohammad Hassan Baqershahi (Leibniz University Hannover)
Elyas Ghafoori (Leibniz University Hannover)
*Can Ayas (Delft University of Technology)

G3-3:
TOPOLOGY OPTIMIZATION OF CONTINUOUS FIBER STRUCTURES FOR 3D PRINTING WITH DEPOSTION CONSTRAINTS

*Joaquín Castro (University of Liege)
Eduardo FernÁndez (University of Liege)
José Rothkegel (University of Liege)
Pierre Duysinx (University of Liege)

G3-4:
Structural Optimization of Prestressed Concrete Structures with 3D-Printed Formwork

*Emad Shakur (Technion – Israel Institute of Technology)
Oded Amir (Technion – Israel Institute of Technology)

G3-5:
Topology optimization-based design of a robot end effector for hybrid additive manufacturing

*Jasper Rieser (Technical University of Munich)
Markus Zimmermann (Technical University of Munich)

H3: Novel approaches of layout and topology optimization_3

Session Chair: Prof. Makoto Ohsaki (Kyoto University)

9:00 - 10:40, 20 May, Tuesday

H3-1:
Car Body Layout Generation for Crash Load Cases using the Graph and Heuristic based Topology Optimization

*Axel Schumacher (University of Wuppertal)
Florian Beyer (University of Wuppertal)
Jens Trilling (University of Wuppertal)

H3-2:
Suppressing Excessive Vibrations of a Three-Layer Track Model by Optimizing its Parameters to Avoid the Lowest Velocity for Resonance

*Zuzana Dimitrovová (Idmec, Department of Civil Engineering, Nova School of Science and Technology | Nova Fct)

H3-3:
Second-order Cone Programming Formulation for Distributionally Robust Optimization of Truss Compliance under Uncertainty in Distribution of External Load

*Takumi Fujiyama (The University of Tokyo)
Yoshihiro Kanno (The University of Tokyo)

H3-4:
Optimal Layout of Sensors in Hydrogen Fuel Cell Vehicles based on Many-Objective Whale Optimization Algorithm

*Yanzhi Xie (Dalian University of Technology)
Yiyuan Wang (Dalian University of Technology)
Yan Zhao (Dalian University of Technology)
Xueying Lou (Dalian University of Technology)
Gang Li (Dalian University of Technology)

H3-5:
A Growth-Based Configuration Method for Component Packing Optimization

*Shifan Deng (Waseda University)
Masao Arakawa (Waseda University)

I3: Robust and reliability-based optimization_3

Session Chair: Prof. Weifei Hu (Zhejiang University)

9:00 - 10:40, 20 May, Tuesday

I3-1:
Robust Optimization of Discrete Actuator Configurations for Vibration Suppression in Large Space Truss Structures under Impact Loads

*Huiyun Pan (Beihang University)
Shenyan Chen (Beihang University)

I3-2:
Robust design optimization for an electric motor using Gaussian process-based enhanced polynomial dimensional decomposition

Hyunho Jang (Hanyang University)
*Dongjin Lee (Hanyang University)

I3-3:
A Multi-Objective Optimization Approach for Reliable Electric Propulsion System Architecture in AAM Aircraft

*Dong Oh Kwag (Konkuk University)
Min Ji Kim (Konkuk University)
Zin Win Thu (Konkuk University)
Jae-woo Lee (Konkuk University)

I3-4:
Adjoint-based aeroelastic design optimization under uncertainty

*Luca Scotzniovsky (University of California, San Diego)
John Hwang (University of California, San Diego)

I3-5:
Robust Topology Optimization for Fiber-Reinforced Plastic (FRP) Structures Under Harmonic Excitation

*Furong Xie (Tongji University, The University of Sydney)
Dejian Meng (Tongji University)
Yunkai Gao (Tongji University)
Yanan Xu (The University of Sydney)
Chi Wu (University of Newcastle)
Jianguang Fang (University of Technology Sydney)
Qing Li (The University of Sydney)

J3: Multi-objective optimization_3

Session Chair: Prof. Ahmad Najafi (Drexel University)

9:00 - 10:40, 20 May, Tuesday

J3-1:
Topology Optimization for Simultaneous Design of Layout and Structure in Spatial Link Mechanisms Using Micropolar Elasticity Model

*Xuao Li (The University of Tokyo)
Yurika Sayo (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

J3-2:
Topology optimization incorporating maximum thickness constraints using geometric feature based partial differential equations

*Makoto Nakagawa (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

J3-3:
Self-Support Topology Optimization for Multi-axis Additive Manufacturing Incorporated with Curved Layer Slicing

*Shuzhi Xu (The Univeristy of Osaka)
Jikai Liu (Shandong University)
Kentaro Yaji (The Univeristy of Osaka)
Dong He (Hong Kong University of Science and Technology)
Kai Tang (Hong Kong University of Science and Technology (guangzhou))

J3-4:
Topology-based Optimization of Cable-Stayed Bridges

*Luis Simoes (University of Coimbra)
Alberto Martins (University of Coimbra)

J3-5:
Multi-Objective Topology Optimization Using Adaptive Scaling Weight Method

*Hyunseung Ryu (Yonsei University)
Jeonghoon Yoo (Yonsei University)

K3: Multidisciplinary optimization_3

Session Chair: Prof. Zunyi Duan (Northwestern Polytechnical University)

9:00 - 10:40, 20 May, Tuesday

K3-1:

4D Topology Optimization for Pneumatic Soft Robots: Simultaneous Optimization of Soft Body Shape and Air Valve Control

*Hiroki Kobayashi (Toyota Central R&D Labs., Inc.)
Changyoung Yuhn (Toyota Central R&D Labs., Inc.)
Yuki Sato (Toyota Central R&D Labs., Inc.)
Atsushi Kawamoto (Toyota Central R&D Labs., Inc.)
Tsuyoshi Nomura (Toyota Central R&D Labs., Inc.)

K3-2:

Topology Optimization Based on Moving Morphable Components for Wall Placement in Cooling Channels

*Shunsuke Hirotani (Nature Architects Inc.)
Kunitaka Shintani (Nature Architects Inc.)
Yoshikatsu Furusawa (Nature Architects Inc.)
Kentaro Yaji (The University of Osaka)

K3-3:

Augmented Acceleration Design Responses for Transient Sensitivity-based Crashworthiness Optimization

*Lennart Scherz (Hamburg University of Technology)
Claus B.w. Pedersen (Dassault Systèmes Deutschland Gmbh)
Benedikt Kriegesmann (Hamburg University of Technology)

K3-4:

4D topology optimization for magnetically actuated soft robots

*Changyoung Yuhn (Toyota Central R&D Labs., Inc.)
Jiaju Ma (Toyota Central R&D Labs., Inc.)
Yusuke Hara (Toyota Central R&D Labs., Inc.)
Hiroki Kobayashi (Toyota Central R&D Labs., Inc.)
Yuki Sato (Toyota Central R&D Labs., Inc.)
Atsushi Kawamoto (Toyota Central R&D Labs., Inc.)
Tsuyoshi Nomura (Toyota Central R&D Labs., Inc.)

K3-5:

Topology Optimisation of Conformal Cooling Channels in Injection Moulding: A Scaling Strategy for Approximating Turbulent Forced Convection with Laminar Flow

*Yupeng Sun (University of Southern Denmark)
Aniket Ghosh Dastidar (Centre Technique Industriel de La Plasturgie Et Des Composites (CTIPC))
Alban Agazzi (Centre Technique Industriel de La Plasturgie Et Des Composites (CTIPC))
Hao Li (University of Southern Denmark)
Ronan Le Goff (Centre Technique Industriel de La Plasturgie Et Des Composites (CTIPC))
Joe Alexandersen (University of Southern Denmark)

A4: Novel approaches of topology optimization_10

Session Chair: Prof. Pai Liu (Dalian University of Technology)

11:00 - 13:00, 20 May, Tuesday

A4-1:
Continuation of design variables in the TOBS method

*Gil Ho Yoon (Hanyang University)
Young Hun Choi (Hanyang University)
Sang Won Kang (Hanyang University)

A4-2:
Electromagnetic device topology optimization with RVE for addictive manufacturing

*Minkyu Oh (Graduate School of Mechanical Engineering, Yonsei University)
Jeonghoon Yoo (School of Mechanical Engineering, Yonsei University)

A4-3:
Optimizing 3d structures with two interfaces subject to constraints on the interface stiffness matrix

*Tobias Wanninger (Technical University of Munich)
Markus Zimmermann (Technical University of Munich)

A4-4:
Meta-neural Topology Optimization: Knowledge Infusion with Meta-learning

*Igor Kuszczak (University College London / University of Applied Sciences and Arts of Southern Switzerland)
Gaweł Kuś (Brown University)
Federico Bosi (University College London / University of Applied Sciences and Arts of Southern Switzerland)
Miguel Bessa (Brown University)

A4-5:
Comparative Study of Objective Functions in Topology Optimization for Resonance Mitigation

*Seongmin Kim (Gyeongsang National University)
Juheon Kim (Gyeongsang National University)
Junghwan Kook (Gyeongsang National University)

A4-6:
Topology optimization considering geometric constraints with coupled fictitious physical models adaptable to a variety of optimization problems

*Yuu Sakaguchi (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

B4: Data-driven, machine-learning and surrogate modeling based optimization_7

Session Chair: Prof. Giuseppe Carlo Marano (Politecnico di Torino)

11:00 - 13:00, 20 May, Tuesday

B4-1:

Industrialising MDAO for Aerospace Design Through the Use of Machine Learning Enhanced Adaptive Surrogate Models

*Olivia Jelks (Queen Mary University of London)
Vassili Toropov (Queen Mary University of London)
Martin Muir (Airbus Central Research and Technology)

B4-2:

Study on Product Comfort Evaluation and Optimal Design Based on Measurements of Multiple Physiological Signals

*Masakazu Kobayashi (Toyota Technological Institute)
Tetta Takeuchi (Toyota Technological Institute)

B4-3:

A multidisciplinary optimisation framework for fibre-reinforced composite materials

*Fernando Cepero (Coventry University)
Jesper Christensen (Coventry University)
Sadiq Abubakar (Coventry University)

B4-4:

Multi-objective multimodal surrogate optimization of mixed-variable motor design problem

*Tatsuya Asanuma (The University of Tokyo / Jsol Corporation)
Yoshihiro Kanno (The University of Tokyo)

B4-5:

Electro-mechanical design of folding-morphology-electromagnetic integration for satellite-borne membrane antennas

*Wang Zhong (Xidian University)
Yiqun Zhang (Xidian University)
Naigang Hu (Xidian University)

B4-6:

Leveraging satellite data for displacements optimization in structural health monitoring

*Raffaele Tarantini (Politecnico di Torino)
Stefania Coccimiglio (Politecnico di Torino)
Gaetano Miraglia (Politecnico di Torino, Responsible Risk Resilience Interdepartmental Centre (R3C))
Rosario Ceravolo (Politecnico di Torino, Responsible Risk Resilience Interdepartmental Centre (R3C))
Giuseppe Andrea Ferro (Politecnico di Torino)

C4: Data-driven, machine-learning and surrogate modeling based optimization_8

Session Chair: Prof. Hyunseok Oh (Gwangju Institute of Science and Technology)

11:00 - 13:00, 20 May, Tuesday

C4-1:
A Framework for Predicting Loading Forces Applied on Fish Vertebrae Based on Topology Optimization and Deep Neural Network

*Likun Wang (Waseda University)
Longsen Yang (Waseda University)
Shintaro Yamasaki (Waseda University)
Misaki Sakashita (Tokyo University of Science)

C4-2:
Transfer Learning Model-enhanced Structural Topology Optimization of Complex Design Domains

*Linfeng Zhang (Dalian University of Technology)
Chang Liu (Dalian University of Technology)
Xu Guo (Dalian University of Technology)

C4-3:
Topology optimization-driven deep learning and seamless quilting for patchwise trabecular bone reconstruction

*Hyukjin Koh (KAIST)
Bong Ju Chun (Agency For Defense Development)
In Gwun Jang (KAIST)

C4-4:
Structural optimization for fail-safe designs by machine learning

*Benedikt Hamann (Hamburg University of Technology)
Benedikt Kriegesmann (Hamburg University of Technology)

C4-5:
A discrete physics-informed neural networks with finite elements for geometrically nonlinear topology optimization

*Jichao Yin (Hunan University)
Hu Wang (Hunan University)
Guangyao Li (Beijing Institute of Technology Shenzhen Automotive Research Institute)

C4-6:
Aerodynamic design optimization by quantum annealing

*Yuichi Kuya (Kyushu University)
Ryo Tanaka (Tohoku University)

D4: Novel approaches of topology optimization_11

Session Chair: Prof. Weisheng Zhang (Dalian University of Technology)

11:00 - 13:00, 20 May, Tuesday

D4-1:
A morphology-based penalty method for minimum length scale control in topology optimization

*Shilong Su (Northwestern Polytechnical University)
Tong Gao (Northwestern Polytechnical University)
Weihong Zhang (Northwestern Polytechnical University)

D4-2:
Integrated Shape and Topology Optimization with Variable Design Domain for Stiffening Structures

*Marc Naguib (Graduate School of Engineering, Toyota Technological Institute)
Daiki Yamane (Graduate School of Engineering, Toyota Technological Institute)
Masatoshi Shimoda (Toyota Technological Institute)

D4-3:
A level set topology optimization update scheme based on a modified wave equation

*Jan Oellerich (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

D4-4:
Body-fitted topology optimization of an airfoil

*David Danan (Irt Systemx)
Axel Tahmasebimoradi (Irt Systemx)
Julia Schmitt (Irt Systemx)

D4-5:
On a calculation method of the thickness via partial differential equations

*Atsushi Nakayasu (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

D4-6:
PolyAnisoMat: an efficient Matlab code for multi-anisotropic-material topology optimization with variable density and orientation

*Abdulmajeed Altassan (Georgia Institute of Technology)
Leyi Wang (Georgia Institute of Technology)
Emily Sanders (Georgia Institute of Technology)

E4: Novel approaches of topology optimization_12

Session Chair: Prof. Gang-Won Jang (Sejong University)

11:00 - 13:00, 20 May, Tuesday

E4-1:
Topology Optimization of Sutures for Surgical Procedures

*Niels Aage (Technical University of Denmark)
Brandon Parks (Technical University of Denmark)
Kontantinos Poulios (Technical University of Denmark)
Markus Holm (Technical University of Denmark)

E4-2:
Failure resistance optimization of periodic lattice structures

*Markus Tandrup Holm (Technical University of Denmark)
Konstantinos Poulios (Technical University of Denmark)
Niels Aage (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

E4-3:
Discrete Adjoint-based Multi-Material Level Set Topology Optimization

*Byeonghyeon Goh (Ulsan National Institute of Science and Technology)
H. Alicia Kim (University of California San Diego)
Hayoung Chung (Ulsan National Institute of Science and Technology)

E4-4:
Multi-Material and Multi-Joint Topology Optimization Considering Crashworthiness

*Yuhao Huang (Queen's University)
Il Yong Kim (Queen's University)

E4-5:
Nonlinear Structural Dynamics Optimization using Invariant Manifold-Based Reduced Order Models

*Matteo Pozzi (Politecnico di Milano)
Jacopo Marconi (Politecnico di Milano)
Shobhit Jain (TU Delft)
Mingwu Li (Southern University of Science and Technology)
Francesco Braghin (Politecnico di Milano)

F4: Novel approaches of shape optimization_4

Session Chair: Prof. Casper Schousboe Andreasen (Technical University of Denmark)

11:00 - 13:00, 20 May, Tuesday

F4-1:

Layout and shape optimization of thin-walled beams

*Ameer Marzok (Technion - Israel Institute of Technology)

F4-2:

Analytical Sensitivity Analysis for Dynamic Structures Using the Bathe Implicit Method

*Seyed Ali Ghasemi (Tu Dortmund)
Franz-joseph Barthold (Tu Dortmund)

F4-3:

Auxetic Kirigami for Distortion-Free Display in Large Stretching

*Yiqiang Wang (Dalian University of Technology)
Zhan Kang (Dalian University of Technology)

F4-4:

Shape optimization of Lithium-ion Batteries using the Level Set Method

*Murtaza Bookwala (Structural Engineering Department, University of California San Diego)
Andreas Neofytou (Structural Engineering Department, University of California San Diego)
Filippo Agnelli (Structural Engineering Department, University of California San Diego)
Alexandre T.r. Guibert (Structural Engineering Department, University of California San Diego)
H. Alicia Kim (Structural Engineering Department, University of California San Diego)

F4-5:

Isogeometric Analysis and Configuration Design Optimization of Lattice Structures Having Compression-Twist Coupled Deformation

*Se-hyeon Kang (Seoul National University)
Keun-hyeong Ko (Seoul National University)
Hyun-seok Kim (KRISO)
Seonho Cho (Seoul National University)

F4-6:

Shape Optimization of Mechanical Specimens for Complex Material Model Identification Using CutFEM and Digital Image Correlation

*Amina El Bachari (Dtis, Onera - Paris Saclay University)
Susanne Claus (Dtis, Onera - Paris Saclay University)
Johann Rannou (Dmas, Onera - Paris Saclay University)
Vladislav Yastrebov (Centre Des Matériaux, Mines Paris - Psl, Cnrs Umr 7633)
Pierre Kerfriden (Centre Des Matériaux, Mines Paris - Psl, Cnrs Umr 7633)

G4: Optimization and manufacturing_4

Session Chair: Dr. Emad Shakur (Technion Israel Institute of Technology)

11:00 - 13:00, 20 May, Tuesday

G4-1:
Topology Optimization Considering the Residual Stress Constraint and Distortion Minimization in Laser Powder Bed Fusion Additive Manufacturing

Zhi-dong Zhang (Northwestern Polytechnical University)
*Daoyuan Yu (Northwestern Polytechnical University)
Tong Gao (Northwestern Polytechnical University)
Ji-hong Zhu (Northwestern Polytechnical University)
Wei-hong Zhang (Northwestern Polytechnical University)

G4-2:
Topology Optimization with Differential Growth Method for Material Extrusion 3D Printers

*Yu Mineki (Tokyo University of Science)
Makoto Yamakawa (Tokyo University of Science)
Kazuma Goto (Arup)

G4-3:
Topology Optimization of Auxetic Lattice Structures: Exploring the Modulus Ratio for Stable Negative Poisson's Ratio under Large Deformations

*Chengxin Shen (Dalian University of Technology)
Zheng Wu (Dalian University of Technology)
Yiqiang Wang (Dalian University of Technology)

G4-4:
Permanent Magnet Manufacturability-Enhanced Multi-Material Topology Optimization for Electromagnetic Devices

*Won Seok Song (Hanyang University)
Jungho Kim (Hanyang University)
Seungjae Min (Hanyang University)

G4-5:
Hybrid Density-Level Set Topology Optimization with Overhang and Manufacturing Constraints and their Applications

*Julien Leclerc (Cenaero)
Charles Chary (Cenaero)
Erin Kuci (Cenaero)

G4-6:
Topology Optimization Considering Explicit Length Scale Control Based on Image Processing Techniques

*Takehito Osuga (Kyoto University)
Kozo Furuta (Kyoto University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

H4: Novel approaches of layout and topology optimization_4

Session Chair: Prof. Axel Schumacher (University of Wuppertal)

11:00 - 13:00, 20 May, Tuesday

H4-1:
Mechanical Effects of Pore Size Variation in Porous Network-Driven Dehomogenization structure

*Ryota Toyoba (Nagaoka University of Technology, Graduate School)
Yuichi Otsuka (Nagaoka University of Technology, Graduate School)
Yukio Miyashita (Nagaoka University of Technology, Graduate School)

H4-2:
Simultaneous topology and geometry optimization of grid-shells under self-weight loading

*Helen Fairclough (University of Sheffield)
Karol Bolbotowski (Warsaw University of Technology/Iagrange Mathematics and Computing Research Center)
Linwei He (University of Sheffield)
Andrew Liew (Unipart Construction Technologies, Sheffield)
Matthew Gilbert (University of Sheffield)

H4-3:
A Shell-Lattice Pipeline-Crawling Soft Robot

*Di Guo (Dalian University of Technology)
Yiqiang Wang (Dalian University of Technology)
Zhan Kang (Dalian University of Technology)

H4-4:
Multi-Component Truss Topology Optimization with Constructability Constraints as a Nonlinear Mixed-Integer Program

*Zane Schemmer (Massachusetts Institute of Technology)
Josephine Carstensen (Massachusetts Institute of Technology)

I4: Multidisciplinary optimization_4

Session Chair: Prof. Hiroshi Isakari (Keio University)

11:00 - 13:00, 20 May, Tuesday

I4-1:
Multilayer path planning for continuous fibers via discrete optimization

*Fabian Wein (Friedrich-alexander-universität Erlangen-nürnberg)

I4-2:
Democratizing MDO for Industrial Design Engineers

*Dong-hoon Choi (Pidotech Inc.)
Byung-lyul Choi (Pidotech Inc.)

I4-3:
Efficient aeroelastic design optimization for strut-braced wing aircraft

*Yiyuan Ma (Northwestern Polytechnical University)
Yongqi Du (Northwestern Polytechnical University)
Chaofan Wang (Northwestern Polytechnical University)
Zhonghua Han (Northwestern Polytechnical University)
Yue Wang (Northwestern Polytechnical University)

I4-4:
Determination of the Optimal Load Condition for Multi-receiver Wireless Power Transfer Systems

*Minseok Kang (Korea Advanced Institute of Science and Technology, KAIST)
Sunyeol Gwon (Korea Advanced Institute of Science and Technology, KAIST)
In Gwun Jang (Korea Advanced Institute of Science and Technology, KAIST)

J4: Multi-objective optimization_4

Session Chair: Prof. Luis Simoes (University of Coimbra)

11:00 - 13:00, 20 May, Tuesday

J4-1:
Compliant mechanism design using neural networks and studies on its limitations

Sanyun Jin (Yonsei University)
Kyuwon Lee (Yonsei University)
*Jeonghoon Yoo (Yonsei University)

J4-2:
Topology Optimization of Self-Sensing Soft Robotic Grippers

*Connor Mallon (Queensland University of Technology)
Zachary Wegert (Queensland University of Technology)
Anthony Roberts (Queensland University of Technology)
Joshua Pinskier (Csiro)
Harry Bowman (Csiro)
Vivien Challis (Queensland University of Technology)

J4-3:
Moving wide Bezier components with constrained ends-based evolutionary topology optimization for turbulent pipe systems

*Kazuya Urata (The University of Osaka)
Kentaro Yaji (The University of Osaka)
Kikuo Fujita (The University of Osaka)
Keisuke Otsuka (Tohoku University)

J4-4:
Wasserstein Crossover for Gradient-Free Topology Optimization

*Taisei Kii (The University of Osaka)
Hiroshi Teramoto (Kansai University)
Kentaro Yaji (The University of Osaka)
Kikuo Fujita (The University of Osaka)

J4-5:
Simultaneous Design of Macroscopic and Microscopic Structures Based on a Data-Driven Multiscale Topology Optimization

*Misato Kato (The University of Osaka)
Kentaro Yaji (The University of Osaka)
Kikuo Fujita (The University of Osaka)

J4-6:
A study on support material design in ceramic additive manufacturing through topology optimization with removal constraints

*Kota Sakai (The University of Tokyo)
Shuya Onodera (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

K4: Multidisciplinary optimization_5

Session Chair: Prof. H Alicia Kim (UC San Diego)

11:00 - 13:00, 20 May, Tuesday

K4-1:
Topology optimization of locomoting soft robots with neural network-based controllers

*Yuki Sato (Toyota Central R&D Labs., Inc.)
Changyoung Yuhn (Toyota Central R&D Labs., Inc.)
Hiroki Kobayashi (Toyota Central R&D Labs., Inc.)
Atsushi Kawamoto (Toyota Central R&D Labs., Inc.)
Tsuyoshi Nomura (Toyota Central R&D Labs., Inc.)

K4-2:
Multi-material topology optimization of viscoelastic material for dynamic problems based on discrete material optimization

*Nam Vo Trong (Yokohama National University)
Shun Ogawa (The University of Tokyo)
Katsuyuki Suzuki (The University of Tokyo)
Yasumi Kawamura (Yokohama National University)

K4-3:
Layout optimization of miniaturized dynamic vibration absorbers based on topology optimization

*Jun Iwasaki (Waseda University)
Riku Yoneoka (Waseda University)
Akihiro Takezawa (Waseda University)
Yuya Saito (Mitsubishi Chemical Corporation)
Takeshi Matsuoka (Mitsubishi Chemical Corporation)
Takahiro Komamura (Mitsubishi Chemical Corporation)
Naoyuki Uchida (Mitsubishi Chemical Corporation)
Masanari Nakayama (Mitsubishi Chemical Corporation)

K4-4:
Topology Optimization of a Thermo-Elastic Problem Considering Design-Dependent Loads for Rail Brackets of Evacuation Guidance Robots

*Hong-lae Jang (Korea National University of Transportation)
Seung Ho Ahn (Korea Railroad Research Institute)
Duck-hee Lee (Korea Railroad Research Institute)
Jonghwan Park (Changwon National University)
Minseong Cho (Changwon National University)

K4-5:
Topology Optimization of Gyroid-type Heat Exchangers Based on a Porous Effective Model

*Kaito Ohtani (The University of Osaka)
Kentaro Yaji (The University of Osaka)
Kikuo Fujita (The University of Osaka)

K4-6:
Fluid-Structure Interaction Topology Optimization Through a Modularized and Interoperable Architecture

*Andreas Neofytou (University of California, San Diego)
H. Alicia Kim (University of California, San Diego)

A5: Novel approaches of topology optimization_13

Session Chair: Prof. Gil Ho Yoon (Hanyang University)

15:30 - 17:30, 20 May, Tuesday

A5-1:
A general univariate mapping-based method for topology optimization of multi-materials

*Wenjie Ding (Beijing Institute of Technology)

A5-2:
Explicit De-homogenization for Topology Optimization of Graded Lattice Structures

*Sungjin Kwon (Gwangju Institute of Science and Technology)
Jaewook Lee (Gwangju Institute of Science and Technology)

A5-3:
Improvement of Geometric Constraints of ACO topology Using X-means Method

*Ryohei Hatori (Shibaura Institute of Technology)
Hiroshi Hasegawa (Shibaura Institute of Technology)

A5-4:
A method based on the element removal strategy to suppress numerical errors of the direct problem in eigenfrequencies topology optimization

*Qiangwei Zhao (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
Chong Wang (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
Tongxing Zuo (University of The Chinese Academy of Sciences)
Qianglong Wang (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
Han Zhang (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
Zhenyu Liu (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)

A5-5:
Topology optimization of multi-material structures with interfacial stress constraints

*Pai Liu (Dalian University of Technology)
Zhan Kang (Dalian University of Technology)
Yifan Zhang (Dalian University of Technology)

B5: Data-driven, machine-learning and surrogate modeling based optimization_9

Session Chair: Prof. Nam Ho Kim (University of Florida)

15:30 - 17:30, 20 May, Tuesday

B5-1:

Dimension Reduction of Design Variables Space for Efficient Aerodynamic Shape Optimization

*Wataru Yamazaki (Nagaoka University of Technology)
Kenya Hirose (Nagaoka University of Technology)
Nomin Buyanbaatar (Nagaoka University of Technology)

B5-2:

An Autoencoder-Assisted Bayesian Optimization Approach for High-Dimensional Problems

*Rikuto Saito (Kyushu University)
Kosei Hayashi (Kyushu University)
Koji Shimoyama (Kyushu University)

B5-3:

Conformal Prediction Framework for Multi-fidelity Data Fusion

*Baofei Xia (School of Mathematical Sciences, Dalian University of Technology)
Yangzhou Liu (School of Mathematical Sciences, Dalian University of Technology)
Chao Zhang (School of Mathematical Sciences, Dalian University of Technology)

B5-4:

Kinematic Optimization of Flapping-wing Aerial Vehicle based on Adaptive Multi-fidelity Co-Kriging Surrogate Model

*Ci He (Kyoto University)
Wenhao Fan (Yangzhou University)
Kozo Furuta (Kyoto University)
Kazuhiro Izui (Kyoto University)
Peng Zhang (Zhejiang University)
Shuyou Zhang (Zhejiang University)

B5-5:

Physics-based Data-driven Fast Aerodynamic Shape Design Optimization of Wind Turbine Blades

*Jichao Li (Northwestern Polytechnical University)

B5-6:

Efficient Multi-Objective Constrained Bayesian Optimization of Bridge Girder

*Heine Havneraas Røstum (Norwegian University of Science and Technology (ntnu))
Sebastien Gros (Norwegian University of Science and Technology (ntnu))
Joseph Morlier (Isae-supaero)
Ketil Aas-jakobsen (Dr Ing A Aas-Jakobsen AS)

C5: Data-driven, machine-learning and surrogate modeling based optimization_10

Session Chair: Dr. Jonathan Belof (Lawrence Livermore National Laboratory)

15:30 - 17:30, 20 May, Tuesday

C5-1:

Machine learning-based design for additive manufacturing in biomedical engineering

*Qing Li (The University of Sydney)
Chi Wu (University of Newcastle)
Yanan Xu (The University of Sydney)
Boyang Wan (The University of Sydney)
Jianguang Fang (University of Technology Sydney)
Ali Entezari (University of Technology Sydney)
Grant Steven (The University of Sydney)

C5-2:

Data-driven multifidelity topology design for concurrent optimization of multiple design variable fields

*Hiroki Kawabe (The University of Osaka)
Shuzhi Xu (The University of Osaka)
Kentaro Yaji (The University of Osaka)

C5-3:

Surrogate-Based Optimization coupled with Dynamic Variable Clustering for the Design of a Multi-Stage Compressor

*Rajan Filomeno Coelho (Cenaero)
Rémy Nigro (Cenaero)
Caroline Sainvitu (Cenaero)
Tariq Benamara (Cenaero)

C5-4:

Graph-Based Autoencoder Optimization for Anomaly Detection in Dual Fuel Marine Engines

*Jaewoong Choi (Pusan National University (Busan, Republic of Korea))
Yoojeong Noh (Pusan National University (Busan, Republic of Korea))
Young-jin Kang (Pusan National University (Busan, Republic of Korea))

C5-5:

Continuous High-throughput Characterization of Mechanical Properties via Deep Learning

*Gengxuan Zhu (Zhejiang University)
Xueyan Hu (Huanjiang Labrotary)
Weiqiu Chen (Zhejiang University)

D5: Novel approaches of topology optimization_14

Session Chair: Prof. Hé¬io Emmendoerfer Jr. (Pontifí£ia Universidade Cató¬ica do Paraná¢,Brazil)

15:30 - 17:30, 20 May, Tuesday

D5-1:

Geometrically design of stretchable multi-material structures via moving morphable void method

*Qi Lai (Dalian University of Technology)

Weisheng Zhang (Dalian University of Technology)

D5-2:

Sequential Regularized Linear Programming for Shape and Topology Optimization

*Ronald Bartz (Volkswagen Ag)

Thilo Franke (Volkswagen Ag)

D5-3:

New features in the nested optimization of crash-loaded deep-drawn components considering linear buckling in the inner loop

*Philipp Clemens (University of Wuppertal)

Axel Schumacher (University of Wuppertal)

D5-4:

Heat Sink Design via Interface-Filtering Structural Optimization

Tianye Wang (University of Wisconsin, Madison)

*Xiaoping Qian (University of Wisconsin, Madison)

D5-5:

Efficient 3-D shape and topology optimization based on beam modeling

*Eilam Amir (Department of Aerospace Engineering, Technion – Israel Institute of Technology)

Oded Amir (Faculty of Civil and Environmental Engineering, Technion – Israel Institute of Technology)

E5: Novel approaches of topology optimization_15

Session Chair: Prof. Hongling Ye (Beijing University of Technology)

15:30 - 17:30, 20 May, Tuesday

E5-1:
Proper Generalized Decomposition for Topology Optimization of Structural Dynamics Problems

*Tomas Pauwels (Ku Leuven)
Geert Degrande (Ku Leuven)
Mattias Schevenels (Ku Leuven)

E5-2:
An implicit super element boundary shape function for the problem independent machine learning fluid topology optimization method

*Zheng Li (Dalian University of Technology)
Shenyu Yang (Dalian University of Technology)
Zhijie Su (Dalian University of Technology)
Jinmin Wang (Dalian University of Technology)

E5-3:
Topological Design Optimization and Experimental Validation of a Broadband Piezoelectric Energy Harvester Device

*Siyang Hu (University of Rostock)
Ulrike Fitzer (Jade University of Applied Sciences)
Dennis Hohlfeld (University of Rostock)
Tamara Bechtold (Jade University of Applied Sciences)

E5-4:
Crack detection for continuum structures driven by PeriDynamics-based topology optimization

*Yuan Liu (Dalian University of Technology)
Weisheng Zhang (Dalian University of Technology)

E5-5:
Topology optimization of nonreciprocal structural systems

*Vahid Shobeiri (Rmit University)
Yi Min Xie (Rmit University)

F5: Novel approaches of shape optimization_5

Session Chair: Prof. Peng Hao (Dalian university of technology)

15:30 - 17:30, 20 May, Tuesday

F5-1:

A node-based shape optimization parameterization for bead feature generation

*Bastian Devresse (Technical University of Munich)
David Schmölz (Technical University of Munich)
Armin Geiser (Bmw Group)
Kai-uwe Bletzinger (Technical University of Munich)
Roland Wüchner (Technical University of Munich)

F5-2:

GridapTopOpt.jl: a scalable Julia toolbox for level set-based topology optimisation

*Zachary Wegert (Queensland University of Technology)
Jordi Manyer (Monash University)
Connor Mallon (Queensland University of Technology)
Santiago Badia (Monash University)
Anthony Roberts (Queensland University of Technology)
Vivien Challis (Queensland University of Technology)

F5-3:

Isogeometric shape design sensitivity analysis for curved surfaces with arc-lengths parameters considering tangential design perturbations

*Keun-hyeong Ko (Seoul National University)
Se-hyun Kang (Seoul National University)
Hyun-seok Kim (Alternative Fuels and Power System Research Division, Kriso)
Seonho Cho (Seoul National University)

F5-4:

Shape Optimization of Axial Groove Heat Pipes

Asger Bjerregaard Petersen (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)
*Casper Schousboe Andreasen (Technical University of Denmark)

F5-5:

Topology optimization method of next-generation composite wing spars and ribs accounting for manufacturing requirements

*Dongsheng Jia (Northwestern Polytechnical University)
Akash Bhuwal (Queen Marry University of London)
Tao Liu (Queen Marry University of London)
Vassili Toropov (Queen Marry University of London)

G5: Optimization and manufacturing_5

Session Chair: Prof. Nozomu Kogiso (Osaka Metropolitan University)

15:30 - 17:30, 20 May, Tuesday

G5-1:
Novel optimization scheme for beam-based heterogeneous lattices

*Francesco De Canio (University of Roma La Sapienza)
Filippo Maggioli (University of Milano Bicocca)
Paolo Venini (University of Pavia)

G5-2:
Design and testing of print-path aware topology optimized material architectures

*Hajin Kim-tackowiak (MIT)
Josephine Carstensen (MIT)

G5-3:
Topology Optimization of Structural Wind Turbine Foundations Via Sequential Linear Programming With Casting Constraints for Manufacturable Designs

*Kamilla Emily Santos Silva (University of Sao Paulo)
Rômulo Luz Cortez (University of Sao Paulo)
Josephine Voigt Carstensen (Massachusetts Institute of Technology)
Renato Picelli (University of Sao Paulo)

G5-4:
Topology optimization method for PBF-LB components with consideration of manufacturing-related residual stresses

*Sven Lenhardt (Ipek – Institute of Product Engineering at Karlsruhe Institute of Technology)
Albert Albers (Ipek – Institute of Product Engineering at Karlsruhe Institute of Technology)

G5-5:
Bridging the gap between stress-constrained topology optimization and additive manufacturing

*Oliver Giraldo-londoño (University of Missouri)
Rogelio Muñeton-lopez (University of Missouri)
Chadwick Bettale (University of Missouri)

H5: Optimization of metamaterials_1

Session Chair: Prof. Yoon Young Kim (Sookmyung Women'ts Univ & Seoul National Univ.)

15:30 - 17:30, 20 May, Tuesday

H5-1:

Design of Opening Shapes with Regional Sound Insulation for Construction Machinery Using Topology Optimization

*Hiromitsu Emoto (Komatsu Ltd.)
Takayuki Yamada (The University of Tokyo)

H5-2:

Layout Optimization of Inclusion Phase in Bio-inspired Composite Microstructures for Enhancing Fracture Toughness

*Chenyi Wang (Dalian University of Technology)
Pai Liu (Dalian University of Technology)
Zhan Kang (Dalian University of Technology)

H5-3:

Topology optimization for pneumatic soft acoustic metamaterial with tunable wide band gap

*Kun Zhang (Hunan University)
Ning Chen (Hunan University)
Jian Liu (Hunan University)

H5-4:

Topology Optimization of Acoustic Metamaterials with Precise Performance Control

*Xiaopeng Zhang (Dalian University of Technology)

H5-5:

Topology optimization of grid locally resonant acoustic metamaterials for bandgap tuning

*Jiheum Han (Yonsei University)
Jewoo Choi (Yonsei University)
Hyo Seon Park (Yonsei University)

I5: Multidisciplinary optimization_6

Session Chair: Prof. Yiyuan Ma (Northwestern Polytechnical University)

15:30 - 17:30, 20 May, Tuesday

I5-1:

Topology Optimization Design of Primary Mirror Based on Opto-Mechanical Coupling

*Chong Wang (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
Wenli Li (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
Zhenyu Liu (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)

I5-2:

Review to Fourier Optics-based Optimization Methods for Diffractive Optical Elements

*Zhenyu Liu (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
Gengdong Cheng (Dalian University of Technology)

I5-3:

Multi-Planar Fabrication Sequence Optimization for Controlling Metallic Microstructures in Additive Manufacturing

*Vibhas Mishra (Delft University of Technology)
Can Ayas (Delft University of Technology)
Jun Wu (Delft University of Technology)

I5-4:

Generative Structural Design and Optimization Driven by Large Language Model

Bingkun Guo (Zhejiang University)
*Yiming Zhang (Zhejiang University)
Wentian Li (Zhejiang University)
Xiaojian Liu (Zhejiang University)
Shuyou Zhang (Zhejiang University)

I5-5:

Co-design optimisation of a family of robots with shared components

*Akhil Sathuluri (Technical University of Munich)
Markus Zimmermann (Technical University of Munich)

J5: Multi-physics optimization_1

Session Chair: Prof. Emí¬io Carlos Nelli Silva (University of Sao Paulo)

15:30 - 17:30, 20 May, Tuesday

J5-1:
Engineering optical forces through topology optimization

*Beñat Martinez De Aguirre Jokisch (Technical University of Denmark)
Rasmus Ellebæk Christiansen (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

J5-2:
Topology optimisation of Hybrid TPMS Lattice Structure for Thermomechanical Coupling Problem

*Zhi-qian Zhang (Institute of High Performance Computing (IHPC))
Pei Wang (Institute of Materials Research and Engineering (IMRE))
Chee Kok Poh (Institute of Sustainability For Chemicals, Energy and Environment (ISCE))

J5-3:
Enhanced Microchannel Heat Sink Design via Topology Optimization with Eulerian-Eulerian Nanofluids

*Chih-hsiang Chen (The University of Osaka)
Kentaro Yaji (The University of Osaka)

J5-4:
Topology optimization to mitigate thermo-mechanically induced optical aberrations for laser satellite communication

*Joran Van Der Zwet (Delft University of Technology)
Can Ayas (Delft University of Technology)
Matthijs Langelaar (Delft University of Technology)

J5-5:
Multiphysics constrained topology optimization and application to superconducting magnets design for high magnetic field MRIs

*Jason Le Coz (Université Paris-saclay, Cea, Service D'Études Mécaniques Et Thermiques)
François Di Paola (Université Paris-saclay, Cea, Service D'Études Mécaniques Et Thermiques)
Guillaume Dilasser (Université Paris-saclay, Cea, Département Des Accélérateurs, de Cryogénie Et de Magnétisme)
Guenhael Le Quilliec (Université de Tours, Laboratoire de Mécanique Gabriel Lamé)
Piotr Breitkopf (Université de Technologie de Compiègne, Laboratoire Roberval)
Pierre Feissel (Université de Technologie de Compiègne, Laboratoire Roberval)

J5-6:
Development of topology optimization for controlling particles suspended in fluid considering contact

*Young Hun Choi (Hanyang University)
Gil Ho Yoon (Hanyang University)

K5: Multidisciplinary optimization_7

Session Chair: Prof. Hong-Lae Jang (Korea National University of Transportation)

15:30 - 17:30, 20 May, Tuesday

K5-1:

Towards fast topology optimisation of transient heat conduction using parallel space-time methods

*Joe Alexandersen (University of Southern Denmark)
Magnus Appel (University of Southern Denmark)

K5-2:

Multi-scale variable stiffness design optimization of fiber-reinforced composite material with multi-point shape preserving constraint

*Zunyi Duan (Northwestern Polytechnical University)
Yi Liu (Northwestern Polytechnical University)
Haoxiang Zhang (Northwestern Polytechnical University)
Jun Yan (Dalian University of Technology)
Jihong Zhu (Northwestern Polytechnical University)

K5-3:

Derivative-Free Trust-Region-Guided Explicit Level Set Topology Optimisation using Mobile Basis Functions

*D. Jia (Queen Mary University of London)
Elliot Bontoft (Queen Mary University of London)
Y. Zhang (Queen Mary University of London)
V. Toropov (Queen Mary University of London)

K5-4:

Discussion on Topology Optimization Software and its Reusability and Interoperability

*H Alicia Kim (UC San Diego)

K5-5:

Topology optimization of flow field to improve the power density of a solid oxide fuel cell (SOFC)

*Juliano Gonçalves (University of São Paulo)
Luis Sá (University of São Paulo)
Thiago Lopes (University of São Paulo)
Julio Meneghini (University of São Paulo)
Emilio Silva (University of São Paulo)

A6: Novel approaches of topology optimization_16

Session Chair: Prof. Graeme Kennedy (Georgia Institute of Technology)

9:30 - 11:30, 21 May, Wednesday

A6-1:
Concurrent optimization method for integrated structures with internal fluid channels using feature-driven method

*Linsheng He (Northwestern Polytechnical University)
Ying Zhou (Northwestern Polytechnical University)
Weihong Zhang (Northwestern Polytechnical University)

A6-2:
Topology optimization of multi-material compliant mechanisms using moving wide spline curves with constrained ends

*Kozo Furuta (Kyoto University)
Hayate Nakayama (Kyoto University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

A6-3:
Verification of the conditions under which faster topology optimization based on level set methods can be achieved by online machine learning

*Takahiro Akimoto (The University of Tokyo)
Liyong Tong (The University of Sydney)
Takayuki Yamada (The University of Tokyo)

A6-4:
Towards topology optimization of non-periodic lattices by a homogenization method

*Federico Ferrari (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

A6-5:
Gradient-based hyper-parameter tuning for topology optimization

*Suryanarayanan Manoj Sanu (TU Delft)
Miguel Bessa (Brown University)
Alejandro Aragon (TU Delft)

B6: Data-driven, machine-learning and surrogate modeling based optimization_11

Session Chair: Prof. Jichao Li (Northwestern Polytechnical University)

9:30 - 11:30, 21 May, Wednesday

B6-1:

Small-Sample Uncertainty Calibration Based on Correlation Metrics

*Hao Liu (Dalian University of Technology)
Peng Hao (Dalian University of Technology)
Shaojun Feng (Dalian University of Technology)

B6-2:

Structural safety margin assessment method considering load and structural strength uncertainties

*Hao Yang (Dalian University of Technology)
Peng Hao (Dalian University of Technology)

B6-3:

A Multi-criteria Decision-making Tool for the Optimal Design of Buildings Made by Reusing Steel

*Raffaele Cucuzza (1-politecnico di Torino; 2- Henan University of Technology)
Giuseppe Carlo Marano (Politecnico di Torino)

B6-4:

Sensitivity-based Trend Function Optimization for Kriging Surrogate

*Nam Ho Kim (University of Florida)
Muhammed Alzahrani (University of Florida)

B6-5:

A Classification-based Approach for the Stochastic Optimization of Structures Subjected to Random Vibrations

Luis Enrique Ballesteros Martínez (The University of Arizona)
*Samy Missoum (The University of Arizona)

C6: Data-driven, machine-learning and surrogate modeling based optimization_12

Session Chair: Prof. Weiming Wang (Nanjing University of Science and Technology)

9:30 - 11:30, 21 May, Wednesday

C6-1:

Search Space Reduction by Explainable Artificial Intelligence in Optimal Sensor Placement: Application to Pipeline Health Monitoring

Chungeon Kim (Gwangju Institute of Science and Technology)
*Hyunseok Oh (Gwangju Institute of Science and Technology)

C6-2:

Hyperparameter Design of Multi-Layered Perceptron Model Using Particle Swarm Optimization

*Kenta Shiomi (Nagoya University)
Eisuke Kita (Nagoya University)

C6-3:

INVERSE DESIGN VIA AI AGENTS FOR DYNAMIC MATERIALS

*Jonathan Belof (Lawrence Livermore National Laboratory)
Michael Armstrong (Lawrence Livermore National Laboratory)
Lorin Benedict (Lawrence Livermore National Laboratory)
Simon Bland (Plasma Physics Group)
Youngsoo Choi (Lawrence Livermore National Laboratory)
Giselle Fernández-godino (Lawrence Livermore National Laboratory)
Michael Hennessey (Lawrence Livermore National Laboratory)
Charles Jekel (Lawrence Livermore National Laboratory)
Dylan Kline (Lawrence Livermore National Laboratory)
Kevin Korner (Lawrence Livermore National Laboratory)
Korner Nguyen (Lawrence Livermore National Laboratory)
Robert Rieben (Lawrence Livermore National Laboratory)
William Schill (Lawrence Livermore National Laboratory)
Meir Shachar (Lawrence Livermore National Laboratory)
Dane Sterbentz (Lawrence Livermore National Laboratory)
Thomas Stitt (Lawrence Livermore National Laboratory)
Jergus Strucka (Plasma Physics Group)
Kyle Sullivan (Lawrence Livermore National Laboratory)
Daniel White (Lawrence Livermore National Laboratory)

C6-4:

Deep Learning-Driven Topology Optimization Framework Incorporating Structural Continuity via Variational Autoencoders

*Tomotaka Sugai (The University of Tokyo)
Kohei Shintani (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

C6-5:

Efficient structural topology optimization using online learning and multi-grid decomposition

*Kangjie Li (The Hong Kong University of Science and Technology)
Wenjing Ye (The Hong Kong University of Science and Technology)

D6: Novel approaches of topology optimization_17

Session Chair: Prof. Xiaoping Qian (University of Wisconsin, Madison)

9:30 - 11:30, 21 May, Wednesday

D6-1:
Regularization Techniques in Simultaneous 3D Shape and Topology Optimization

*Vilmer Dahlberg (Lund University)
Anna Dalklint (Harvard University)
Mathias Wallin (Lund University)

D6-2:
Level Set-based Topology Optimization of Reinforced Structures considering Damage

*Lise Noel (Delft University of Technology)
Henrik Lutjering (Delft University of Technology)
Nils Hermann (Delft University of Technology)

D6-3:
Design Optimization for Mechanical Logic Gates

*Kenneth Swartz (Lawrence Livermore National Laboratory)
Michael Tupek (Lawrence Livermore National Laboratory)
Daniel Tortorelli (Lawrence Livermore National Laboratory)
Brandon Talamini (Lawrence Livermore National Laboratory)

D6-4:
Level Set Topology Optimization with Local Stress Constraints using Cut Elements

*Hélio Emmendoerfer Jr. (Pontifícia Universidade Católica Do Paraná)
Gustavo Assis Da Silva (Örebro University)
Niels Aage (Technical University of Denmark)
Emílio Carlos Nelli Silva (University of São Paulo)

D6-5:
Shape and topology optimization formulated on Wasserstein spaces and derivatives of objective functions

*Fumiya Okazaki (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

E6: Novel approaches of topology optimization_18

Session Chair: Prof. Takayuki Yamada (The University of Tokyo)

9:30 - 11:30, 21 May, Wednesday

E6-1:

Non-gradient Topology Optimization of Fluid Problems Using Moving Wide Spline Curves with Constrained Ends

*Sei Mineno (Kyoto University)
Takamitsu Sasaki (Kyoto University)
Kozo Furuta (Kyoto University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

E6-2:

New automated design tool for the layout process of roll formed structures in topology optimization.

*Christian Gutgar (University of Wuppertal)
Axel Schumacher (University of Wuppertal)
Martin Müller-bechtel (Novelis Deutschland Gmbh)

E6-3:

Internal Contact Aware Topology Optimization using Material Point Method

*Zain Hassan (Technical University Braunschweig, Siemens Digital Industry Software)
Eduardo Tenorio Simoes (Siemens Digital Industry Software)
Etienne Lemaire (Siemens Digital Industry Software)
Roland Wüchner (Technical University Braunschweig, Technical University of Munich)

E6-4:

Topology Optimization of Heat Transfer Problems for Heat Exchanger Design

*Kun Yan (Dalian University of Technology)
Jun Yan (Dalian University of Technology)
Yunyu Wang (Dalian University of Technology)
Ruihan Wu (Dalian University of Technology)

F6: Novel approaches of shape optimization_6

Session Chair: Prof. Dongsheng Jia (Queen Marry University of London)

9:30 - 11:30, 21 May, Wednesday

F6-1:

Design, analysis and optimization of Pinned-Pinned Bistable Low Arches with Initial Compression

*Purohit Bhandarikumar (Indian Institute of Technology Madras)
Sourav Rakshit (Indian Institute of Technology Madras)

F6-2:

A novel intelligent optimization method for gradual-stiffness stiffened structures via hierarchical dimension reduction

*Peng Hao (Dalian University of Technology)
Dachuan Liu (Dalian University of Technology)
Kunpeng Zhang (Dalian University of Technology)
Shaojun Feng (Dalian University of Technology)

F6-3:

Generative Design with Autoencoder and Diffusion Model

*Dong-keon Kim (Pidotech Inc.)
Donggeon Lim (Pidotech Inc.)
Hyungjoo Moon (Pidotech Inc.)
Gyu-byung Park (Pidotech Inc.)

F6-4:

Rigid Folding Simulation of Flat Origami using Planar Tensegrity Model and Optimization Method

*Lidong Zhu (Kyoto University)
Jingyao Zhang (Kyoto University)

F6-5:

Multi-objective design optimization using deep reinforcement learning coupled with hypervolume-based rewards

*Kazuo Yonekura (The University of Tokyo)
Ryusei Yamada (The University of Tokyo)
Shun Gawa (The University of Tokyo)
Katsuyuki Suzuki (The University of Tokyo)

G6: Optimization and manufacturing_6

Session Chair: Prof. Shinji Nishiwaki (Kyoto University)

9:30 - 11:30, 21 May, Wednesday

G6-1:
A Method for Enforcing Alloy Compatibility in Multi-Alloy Topology Optimization

*Richard Malak (Texas A&m University)
Yalan Shu (Texas A&m University)

G6-2:
Simultaneous Optimization of Material Selection and Topology of Functionally Graded Structures

Yakov Zelickman (Johns Hopkins University)
*James Guest (Johns Hopkins University)

G6-3:
Topology and build direction optimization for additive manufacturing considering overhang constraints and material anisotropy

*Che Wang (Xi'an University of Science and Technology)
Weihong Zhang (Northwestern Polytechnical University)

G6-4:
Topology Optimization with Additive Manufacturing Build Size Constraints using Feature Mapping that Decomposes to Interlocking Parts

*Jo Gessert (Technical University of Munich)
Felix Endress (Technical University of Munich)
Markus Zimmermann (Technical University of Munich)
Josephine V. Carstensen (Massachusetts Institute of Technology)

G6-5:
Concurrent topology and fiber orientation optimization method considering the residual stress in additive manufacturing

*Yongjia Dong (Beijing University of Technology)
Hongling Ye (Beijing University of Technology)

H6: Optimization of metamaterials_2

Session Chair: Prof. Xiaopeng Zhang (Dalian University of Technology)

9:30 - 11:30, 21 May, Wednesday

H6-1:

Physics-based partitioned optimization design method for focusing devices

*Qianglong Wang (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences)
Haitao Han (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences)
Zhenyu Liu (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences)

H6-2:

Enhancing Photonic Crystal Design through Neural Topology Optimization

*Shunyu Yin (Brown University)
Miguel Bessa (Brown University)

H6-3:

Topology optimization of 3D composites exhibiting the Hall effect and other nonreciprocal effects

*Christian Kern (Technical University of Denmark)
Rasmus Ellebæk Christiansen (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

H6-4:

A Generative Model Approach for Topological Design of Nonlinear Mechanical Metamaterials

*Huiyu Wang (The University of Sydney)
Chi Wu (The University of Sydney)
Jianguang Fang (The University of Sydney)
Qing Li (The University of Sydney)

H6-5:

Viscoelastic Multi-material Topology Optimization to Suppress Viscous Dissipation with Stiffness Constraint

Rin Matsuo (Nagoya University)
Hiroya Hoshiba (Nagoya University)
Koji Nishiguchi (Nagoya University)
Takahiro Ohkuma (Bridgestone Corporation)
Hiroshi Kadowaki (Bridgestone Corporation)
*Junji Kato (Nagoya University)

I6: Multidisciplinary optimization_8

Session Chair: Prof. Zhenyu Liu (Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Science)
9:30 - 11:30, 21 May, Wednesday

I6-1:
Research on Optimization Algorithms Considering the Pre-screening Mechanism of Surrogate Models

*Songyu Liu (Northwestern Polytechnical University)
Hua Su (Northwestern Polytechnical University)
Qi Liu (Northwestern Polytechnical University)
Tengfei Zhang (Northwestern Polytechnical University)
Chunlin Gong (Northwestern Polytechnical University)

I6-2:
Omnidirectional acoustic cloaking for arbitrary materials and shapes

Akihiro Yoshiki (Keio University)
Kei Matsushima (The University of Tokyo)
*Hiroshi Isakari (Keio University)

I6-3:
Integrated LLM-based Job Manager Agent for Design Optimization

*M. Giselle Fernández-godino (Lawrence Livermore National Laboratory)
Jonathan Belof (Lawrence Livermore National Laboratory)
Christopher Biwer (Los Alamos National Laboratory)
Nathan Brown (Sandia National Laboratories)
Andrew Garmon (Los Alamos National Laboratory)
Brian Gunnarson (Lawrence Livermore National Laboratory)
Angela Herring (Los Alamos National Laboratory)
Charles F. Jekel (Lawrence Livermore National Laboratory)
Kevin Korner (Lawrence Livermore National Laboratory)
Harshitha Menon (Lawrence Livermore National Laboratory)
Ying Wai Li (Los Alamos National Laboratory)
Gabriel Rockefeller (Los Alamos National Laboratory)
Meir H. Shachar (Lawrence Livermore National Laboratory)
William Schill (Lawrence Livermore National Laboratory)
Dane Sterbentz (Lawrence Livermore National Laboratory)
Daniel White (Lawrence Livermore National Laboratory)

I6-4:
Discrete adjoint to differential algebraic equations arising from transient optimization

*Carlo Sinigaglia (Comsol Multiphysics)

I6-5:
Efficient Geometrically Nonlinear Structural Optimization for Truss and Frame Structures Based on Finite Particle Method

*Gang Li (Dalian University of Technology)
Jinhang Zhou (Dalian University of Technology)
Yan Zeng (Dalian University of Technology)

J6: Multi-physics optimization_2

Session Chair: Dr. ZHi-Qian Zhang (Institute of High Performance Computing (IHPC), Agency for Science Technology and Research (A*STAR), 1 Fusionopolis Way, #16-16 Connexis, Singapore 138632, Republic of Singapore)

9:30 - 11:30, 21 May, Wednesday

J6-1:

Autonomous co-design and fabrication of multi-stimuli responsive materials systems

*Liwei Wang (Carnegie Mellon University)
Alexander Evenchik (Northwestern University)
Jared Yang (Northwestern University)
Ryan Truby (Northwestern University)
Wei Chen (Northwestern University)

J6-2:

Topology Optimization of Euler-Euler Models with Solid Diffusivity Penalization

Diego Silva Prado (University of Sao Paulo)
Luís Fernando Nogueira De Sá (University of Sao Paulo)
José Luís De Paiva (University of Sao Paulo)
Marcelo Martins Seckler (University of Sao Paulo)
*Emílio Carlos Nelli Silva (University of Sao Paulo)

J6-3:

Topology optimization for thermal-fluid problem under maximum temperature constraint using a sequentially adjusting p-norm

*Atsushi Koguchi (Cybernet Systems Co.,ltd.)
Kentaro Yaji (Osaka University)
Tsuguo Kondoh (Kyoto University)
Shinji Nishiwaki (Kyoto University)

J6-4:

Towards topology optimisation of fluid problems with boundary slip conditions

*Amir Hossein Bayat (University of Southern Denmark)
Yupeng Sun (University of Southern Denmark)
Hao Li (University of Southern Denmark)
Joe Alexandersen (University of Southern Denmark)

J6-5:

TOPOLOGY OPTIMIZATION IN SINGLE PHASE RECTANGULAR NATURAL CIRCULATION LOOPS

*Om Venkata Bhargava Rama Reddy Karri (Indian Institute of Technology Madras)
Sourav Rakshit (Indian Institute of Technology Madras)

J6-6:

Topology Optimization of fluid-structure interaction problems considering multimaterials

*Lucas Siqueira (University of São Paulo)
Daniel Cunha (University of Campinas)
Emílio Silva (University of São Paulo)
Renato Picelli (University of São Paulo)

K6: Optimization of materials_1

Session Chair: Prof. Shutian Liu (Dalian University of Technology)

9:30 - 11:30, 21 May, Wednesday

K6-1:
Failure Based Structural Optimization of Carbon Fibre Reinforced Plastic (CFRP) Structures for Additive Manufacturing

*Yanan Xu (The University of Sydney)
Chi Wu (The University of Sydney)
Jianguang Fang (University of Technology Sydney)
Grant Steven (The University of Sydney)
Qing Li (The University of Sydney)

K6-2:
A Multi-Voltage Design Method for Accurate Shape Control in Piezoelectric Smart Structures

*Erke Zhang (Dalian University of Technology)
Xiaopeng Zhang (Dalian University of Technology)
Shen Yang (Dalian University of Technology)

K6-3:
Controlling the Acoustic Impedance of Viscoelastic Materials Using Topology Optimization

*Hiroaki Deguchi (The University of Tokyo)
Kei Matsushima (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

K6-4:
Bi-material topology optimization with precise boundary representation using IGA

*Majd Kosta (Technion - Israel Institute of Technology)
Emad Shakour (Technion - Israel Institute of Technology)
Oded Amir (Technion - Israel Institute of Technology)

K6-5:
Design of Multi-material Microstructures for Extreme and Controllable Properties under Nonlinear Magnetic Fields

*Doyun Jeong (Hanyang University)
Seungjae Min (Hanyang University)

K6-6:
Neural network-based two-scale concurrent topology optimization for hierarchical structures with interface connection constraints

Jinlong Tang (Dalian University of Technology)
*Shutian Liu (Dalian University of Technology)

A7: Novel approaches of topology optimization_19

Session Chair: Prof. Kozo Furuta (Kyoto University)

9:00 - 10:40, 22 May, Thursday

A7-1:
Constraints Adjusted Material with Penalization Method for Topology Optimization with Minimum and Maximum Length Controls

*Chuan Luo (Columbia University)

A7-2:
On the Flow Rate Maximization Formulation for Topology Optimization of Fluid Machinery

*Takamitsu Sasaki (Kyoto University)
Kozo Furuta (Kyoto University)
Tsuguo Kondoh (Kyoto University)
Kisho Hatakenaka (Mitsubishi Electric Corporation)
Akira Kubo (Mitsubishi Electric Corporation)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

A7-3:
Simultaneous and Meshfree Topology Optimization with Physics-informed Gaussian Processes

*Ramin Bostanabad (UC Irvine)

A7-4:
Accelerating Topology Optimization Using MOR

*Kazusuke Chin (The University of Tokyo)
Shun Ogawa (The University of Tokyo)
Kazuo Yonekura (The University of Tokyo)
Katsuyuki Suzuki (The University of Tokyo)

A7-5:
High precise multi-resolution Topology Optimization By Exponential Convergenced Multiscale Finite Element Method

Zhang Mingshuo (Dalian University of Technology)
*Liang Yuan (Dalian University of Technology)
Cheng Gengdong (Dalian University of Technology)

B7: Data-driven, machine-learning and surrogate modeling based optimization_13

Session Chair: Prof. Samy Missoum (The University of Arizona)

9:00 - 10:40, 22 May, Thursday

B7-1:

Optimization of steady-state operation using surrogate models: A vibratory rammer case study

*Anđela Babaja (Technical University of Munich)
Markus Zimmermann (Technical University of Munich)

B7-2:

Crash behaviour of tubular energy absorbers: Accelerated inverse design with deep learning

*Bianca Omede' (Politecnico di Milano)
Antonio Mattia Grande (Politecnico di Milano)

B7-3:

Multi-Objective PSO Driven By Extended CCR

Siwen Xu (Waseda University, Ips)
*Masao Arakawa (Waseda University, Ips)

B7-4:

Multi-objective Structural Optimization of Steel Cost and GHG Emissions in Steel Building Frames

*Ryotaro Fujii (Tokyo University of Science)
Makoto Yamakawa (Tokyo University of Science)
Hiroyuki Aoki (Kumagai Gumi Co., Ltd)
Taisuke Nakazato (Kumagai Gumi Co., Ltd)

C7: Data-driven, machine-learning and surrogate modeling based optimization_14

Session Chair: Prof. James Guest (Johns Hopkins University)

9:00 - 10:40, 22 May, Thursday

C7-1:

An Investigation on Highly Generalizable AI Technology Enhanced Large-scale Structural Analysis and Topology Optimization

*Yilin Guo (Dalian University of Technology)
Chang Liu (Dalian University of Technology)
Xu Guo (Dalian University of Technology)
Changyu Shen (Dalian University of Technology)

C7-2:

Fourier feature-embedded physics-informed neural networks for geometrically nonlinear topology optimization

*Hyogu Jeong (Queensland University of Technology)
Vivien Challis (Queensland University of Technology)
Yuantong Gu (Queensland University of Technology)

C7-3:

Deep Learning Framework for Accelerating Topology Optimization over Irregular Design Domains Independent of Mesh Type

*Hyogeun Park (Hanyang University)
Seungjae Min (Hanyang University)

D7: Novel approaches of topology optimization_20

Session Chair: Prof. Jun Wu (Delft University of Technology)

9:00 - 10:40, 22 May, Thursday

D7-1:
Geometric Filter Informed by Features for Topology Optimization

*Weisheng Zhang (Dalian University of Technology)
Xiaoyu Zhuang (Dalian University of Technology)

D7-2:
Concurrent Topology and Magnetization Direction Optimization of a Halbach Array for High-Torque Electric Motor Design

Lingfeng Gao (State University of New York at Stony Brook)
David Torrey (Ge Vernova Advanced Research)
Fang Luo (State University of New York at Stony Brook)
Jon Longtin (State University of New York at Stony Brook)
*Shikui Chen (State University of New York at Stony Brook)

D7-3:
Towards structural design optimization subject to random vibration

*Mathias Schmidt (Lawrence Livermore National Laboratory)
Boyan Lazarov (Lawrence Livermore National Laboratory)
Seth Watts (Lawrence Livermore National Laboratory)
Daniel Tortorelli (Lawrence Livermore National Laboratory)

D7-4:
Stress-based Multi-material Design by Floating Projection Topology Optimization

*Yuhan Gong (Swinburne University of Technology)
Xiaodong Huang (Swinburne University of Technology)
Weibai Li (Swinburne University of Technology)

D7-5:
GPU-accelerated large-scale 3D topology optimization using unstructured meshes

*Junpeng Zhao (Beihang University)
Tianyuan Qi (Beihang University)

E7: Multiscale optimization_1

Session Chair: Prof. Zhan Kang (Dalian University of Technology)

9:00 - 10:40, 22 May, Thursday

E7-1:

Topology Optimization of Thermal Metastructures for Overheating Control in Additive Manufacturing

*Erin Kuci (Cenaero)

E7-2:

Topology optimization by a machine learning-based homogenization method: application to hyperelastic periodic lattice structures

*Breno Ribeiro Nogueira (Cmap, École Polytechnique, Institut Polytechnique de Paris, Palaiseau, France.)
Grégoire Allaire (Cmap, École Polytechnique, Institut Polytechnique de Paris, Palaiseau, France.)

E7-3:

Data-driven Inverse Design of Bicontinuous Multiscale Structures

*Lili Wang (University of Science and Technology of China)
Jingxuan Feng (University of Science and Technology of China)
Xiaoya Zhai (University of Science and Technology of China)
Jiacheng Han (University of Science and Technology of China)
Kai Chen (University of Science and Technology of China)
Winston Waishing Ma (The Chinese University of Hong Kong)
Ligang Liu (University of Science and Technology of China)
Xiao-ming Fu (University of Science and Technology of China)

E7-4:

Thermal-mechanical design of hybrid solid-lattice structures using multi-material topology optimization

*Yedan Li (Huazhong University of Science and Technology)
Zhen Liu (Huazhong University of Science and Technology)
Yuhan Liu (Huazhong University of Science and Technology)
Liang Xia (Huazhong University of Science and Technology)

E7-5:

Concurrent Optimization of Structural Topology and Laser Scanning Path for Additive Manufacturing

*Xiaoyu Huang (Shanghai Jiao Tong University)
Mingdong Zhou (Shanghai Jiao Tong University)

F7: Novel approaches of shape optimization_7

Session Chair: Prof. Amedeo Manuello Bertetto (Dept. of Structural Geotechnical and Building Engineering Politecnico di Torino, Corso Dua degli Abruzzi 24, 10129 Torino)

9:00 - 10:40, 22 May, Thursday

F7-1:

Genetic Algorithm-based Shape Optimization of the Backup Structure for an Accurate and Lightweight 50-m Class Submillimeter Telescope

*Chihiro Imamura (Nagoya University)
Yoichi Tamura (Nagoya University)
Hiroaki Kawamura (Nagoya City University)
Toshiaki Kimura (Nagoya City University)
Akio Taniguchi (Kitami Institute of Technology)
Mikio Kurita (Kyoto University)

F7-2:

Parameterized shape optimization with level sets and mesh morphing

*Daniel Tortorelli (Lawrence Livermore National Laboratory)
Jorge-luis Barrera-cruz (Lawrence Livermore National Laboratory)
Ryan Mcavoy (Lawrence Livermore National Laboratory)
Mathias Schmidt (Lawrence Livermore National Laboratory)
Kenneth E. Swartz1 Swartz (Lawrence Livermore National Laboratory)

F7-3:

Optimizing Gridshell Structures: Multi-body Rope Approach

*Amedeo Manuello Bertetto (Dept. of Structural Geotechnical and Building Engineering Politecnico di Torino, Corso Dua Degli Abruzzi 24, 10129 Torino)
Jonathan Melchiorre (Dept. of Structural Geotechnical and Building Engineering Politecnico di Torino, Corso Dua Degli Abruzzi 24, 10129 Torino (Italy))
Giuseppe Carlo Marano (Dept. of Structural Geotechnical and Building Engineering Politecnico di Torino, Corso Dua Degli Abruzzi 24, 10129 Torino (Italy))
Bernardino Chiaia (Dept. of Structural Geotechnical and Building Engineering Politecnico di Torino, Corso Dua Degli Abruzzi 24, 10129 Torino (Italy))

F7-4:

Optimization of truss-like structures for temperature effects

*Hazem Madah (Sce - Shamoon College of Engineering)

F7-5:

Multiobjective Constrained Bayesian Optimization of Aeroelastic Characteristics of Wings with Lattice Infill

*Sen Wu (The University of Tokyo)
Tomohiro Yokozeki (The University of Tokyo)

G7: Novel approaches of sizing optimization_1

Session Chair: Dr. Nicolò¢,Pollini Technion - Israel Institute of Technology (Israel)

9:00 - 10:40, 22 May, Thursday

G7-1:

Multi-objective design optimization of double layer microperforated panel absorber using sequential approximate optimization

*Satoshi Tabuchi (Kobe Steel, Ltd.)
Satoshi Kitayama (Kanazawa University)

G7-2:

Design and optimization of waterborne acoustic metasurfaces for uniform diffuse reflections and large angle deflections

*Mu He (Huazhong University of Science and Technology)
Zhe Zhu (Huazhong University of Science and Technology)
Liang Xia (Huazhong University of Science and Technology)

G7-3:

A gradient-based approach for multi-objective optimization of the prestress and size of cable domes

*Nicolò Pollini (Technion - Israel Institute of Technology)

G7-4:

Applicability of Variable-lattice-density Optimization using Brinkman-Forchheimer Equation to High Reynolds Number Flows

*Yoshikatsu Furusawa (Nature Architects Inc.)
Kunitaka Shintani (Nature Architects Inc.)
Shunsuke Hirotani (Nature Architects Inc.)
Kentaro Yaji (The University of Osaka)

G7-5:

Multi-hazard simultaneous optimization of shear wall concrete structures and tuned mass dampers

*Shalom Kleingesinds (Ariel University)
Oren Lavan (Technion - Israel Institute of Technology)

H7: Optimization of metamaterials_3

Session Chair: Prof. Xiaojia Shelly Zhang (University of Illinois at Urbana Champaign)

9:00 - 10:40, 22 May, Thursday

H7-1:

Multi-scale mechanical metamaterials: a machine learning implementation leveraging topology optimisation

*Aya Hosoi (Imperial College London, Asahi Kasei Corporation)
Jier Wang (Imperial College London)
Yuki Fujita (Imperial College London, Asahi Kasei Corporation)
Tatsuo Tanaka (Asahi Kasei Plastics Vietnam)
Junichi Takahashi (Asahi Kasei Corporation)
Ajit Panesar (Imperial College London)

H7-2:

Topology Optimization of Acoustic Metamaterials Exhibiting Negative Refractive Index in the Low-Frequency Range

Nari Nakayama (Kyoto University)
Kozo Furuta (Kyoto University)
Kazuhiro Izui (Kyoto University)
*Shinji Nishiwaki (Kyoto University)

H7-3:

Disordered Network Metamaterials with Optimally Tailored Mechanics

*Lucien Tsai (Princeton University)
Glaucio Paulino (Princeton University)

H7-4:

Conversion of topology optimization results into feature-driven, modifiable, and parametric CAD models

*Hongyuan Ren (Tsinghua University)
Bo Xia (Tsinghua University)
Yang Liu (Tsinghua University)
Xueqian Chen (Tsinghua University)
Jianbin Du (Tsinghua University)

H7-5:

Inverse-designed 3D sequential metamaterials achieving extreme stiffness

*Jiacheng Han (University of Science and Technology of China)
Xiaoya Zhai (University of Science and Technology of China)
Lili Wang (University of Science and Technology of China)
Di Zhang (University of Science and Technology of China)
Junhao Ding (The Chinese University of Hong Kong)
Winston Wai Shing Ma (The Chinese University of Hong Kong)
Xu Song (The Chinese University of Hong Kong)
Wei-hsin Liao (The Chinese University of Hong Kong)
Ligang Liu (University of Science and Technology of China)
Jun Wu (University of Science and Technology of China)
Xiao-ming Fu (Delft University of Technology)

I7: General optimization topics_1

Session Chair: Prof. Jan Liedmann (University of Stuttgart)

9:00 - 10:40, 22 May, Thursday

I7-1:
CubeSat Thermal Optimization using Onboard Digital Twins

*Sergi Pagés I Diaz (Technical University of Munich)
Markus Zimmermann (Technical University of Munich)

I7-2:
Disassembly Process Inference Based on Positional Relations Matrix (An Approach of Optimization of Generated Disassembly Process)

*Kazuyuki Hanahara (Iwate University)
Kaori Yamada (Iwate University)

I7-3:
ALE Remap Through Interpolation and Optimization

Dohyun Kim (Brown University)
Brendan Keith (Brown University)
*Boyan Lazarov (Lawrence Livermore National Laboratory)
Cosmin Petra (Lawrence Livermore National Laboratory)
Mathias Schmidt (Lawrence Livermore National Laboratory)
Vladimir Tomov (Lawrence Livermore National Laboratory)

I7-4:
A regularized shape sensitivity of knot energy with application to the unknotting problem

*Kei Matsushima (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

I7-5:
A comparative study of Kriging models to handle both continuous and discrete variables

*Ikhyun Ryu (PIDOTECH)
Dongheum Ryu (PIDOTECH)
Yongbin Lee (PIDOTECH)
Changhyun Park (PIDOTECH)

J7: Multi-physics optimization_3

Session Chair: Dr. Mario Nakayama (Sumitomo Precision Products)

9:00 - 10:40, 22 May, Thursday

J7-1:
Level-set topology optimization of electrode patterns of a planar piezoelectric transducer for ultrasonic focusing
*Sanguk Park (Pukyong National University)
Jaeyub Hyun (Pukyong National University)

J7-2:
Multiphysics topology optimization for design of internal cooling systems
*Carl-johan Thore (Linköping University)
Jonas Lundgren (Saab AB)
Hossein Nadali Najafabadi (Linköping University)

J7-3:
Fluid-Structure Interaction Topology Optimization Using Density Jumps for Implicit Boundary Representation
*Hampus Hederberg (Linkoping University)
Carl-johan Thore (Linkoping University)

J7-4:
Electric Field Constraint in Multi-Material Topology Optimization of Electroactive Polymers
*Daniel Hard (Lund University)
Mathias Wallin (Lund University)
Matti Ristinmaa (Lund University)

J7-5:
Topology optimization for the design of insulating shield in electroplating process using tertiary current distribution
*Masaki Otomori (Kyoto University)
Hao Li (University of Southern Denmark)
Naoyuki Ishida (Kyoto University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)

K7: Optimization of materials_2

Session Chair: Prof. Juliá® Norato (University of Connecticut)

9:00 - 10:40, 22 May, Thursday

K7-1:

A Nastran-based framework for simultaneous topology and layup optimization of composite structures

Magnus Andreasson (Hexagon)
Erik Holmberg (Saab AB)
*Erik Marklund (RISE)
Carl-johan Thore (Linköping University)

K7-2:

Topology Optimization of Ultralight Frames Made of Fiber-Reinforced Tubes

Nicolás Cuevas-carvajal (University of Connecticut)
*Julián Norato (University of Connecticut)

K7-3:

The open-source Gurit98m wind turbine blade for structural optimization

Sebastian M. Hermansen (Aalborg University)
Gregor Borstnar (Gurit Wind Systems A&s)
Thomas Buhl (Gurit Wind Systems A&s)
*Erik Lund (Aalborg University)

K7-4:

Self-generating multiscale configurations, their CAD features in support of 3D printing and their CAE efficiencies

*Qirui Jin (Dalian University of Technology)
Chuang Ma (Dalian University of Technology)
Yichao Zhu (Dalian University of Technology)

K7-5:

Bilevel Weight Optimization of Next Generation Wing Panels Using Lamination Parameters

*Akash Bhuwal (Queen Mary University of London)
Dongsheng Jia (Queen Mary University of London)
Tao Liu (Queen Mary University of London)
Vassili Toropov (Queen Mary University of London)

A8: Novel approaches of topology optimization_21

Session Chair: Prof. Takeru Igusa (Johns Hopkins University)

11:00 - 13:00, 22 May, Thursday

A8-1:
Topology optimization of elastic adhesive joints using the level set approach

*Andrzej Myslinski (Systems Research Institute)

A8-2:
A design method for Knudsen Pumps using topology optimization with considerations in solid temperature and thermal accommodation coefficient

*Kaiwen Guan (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

A8-3:
Reaction-diffusion based level set method for thermo-elastoplastic three-dimensional topology optimisation

*Seyed Sajad Mirjavadi (University of Sydney)
Grant P Steven (University of Sydney)
Jianguang Fang (University of Technology Sydney)
Qing Li (University of Sydney)

A8-4:
A Simple Introduction to the SiMPL Method for Density-Based Topology Optimization

*Dohyun Kim (Brown University)
Brendan Keith (Brown University)
Boyan S. Lazarov (Lawrence Livermore National Laboratory)
Thomas M. Surowiec (Simula Research Laboratory)

A8-5:
Structural Stability Constraints for Topology Optimization using Asymptotic Methods

*Cameron Smith (Georgia Institute of Technology)
Bao Li (Georgia Institute of Technology)
Graeme Kennedy (Georgia Institute of Technology)

B8: Data-driven, machine-learning and surrogate modeling based optimization_15

Session Chair: Dr. Masakazu Kobayashi (Toyota Technological Institute)

11:00 - 13:00, 22 May, Thursday

B8-1:
Structural Optimisation with Machine Learning of NNs considering Ultimate Limit State

Kazuma Kobayashi (Kagoshima University)
*Yohei Yokosuka (Kagoshima University)

B8-2:
A Multi-objective Optimization and Decision-making Framework for Military Tracked Vehicle Endurance Tests

*Inho Baek (Pusan National University (Busan, Republic of Korea))
Yoojeong Noh (Pusan National University (Busan, Republic of Korea))
Young-jin Kang (Pusan National University (Busan, Republic of Korea))
Jeonghwan Lee (Pusan National University (Busan, Republic of Korea))
Chi-young Ryu (Pusan National University (Busan, Republic of Korea))

B8-3:
Virtual Reality for Enhanced Decision-Making in Multi-Objective Optimization

*Javed Akhter Shaik (Indian Institute of Technology Madras)
Deepanshu Yadav (Indian Institute of Technology Madras)
Manivannan M (Indian Institute of Technology Madras)
Kalyanmoy Deb (Michigan State University)
Palaniappan Ramu (Indian Institute of Technology Madras)

B8-4:
Integrating Structural Complexity and Next-Gen Performance-Based Indicators in Seismic Design

*Jana Olivo (Polytechnic of Turin)
Raffaele Cucuzza (Polytechnic of Turin)
Giuseppe Marano (Polytechnic of Turin)

B8-5:
Truss optimization with discrete design variables by improved Monte Carlo tree search using search tree with multiple root nodes

*Fu-yao Ko (The University of Tokyo)
Katsuyuki Suzuki (The University of Tokyo)
Kazuo Yonekura (The University of Tokyo)

C8: Optimization of dynamic problems_1

Session Chair: Prof. Wei Chen (Northwestern University)

11:00 - 13:00, 22 May, Thursday

C8-1:
Multi-material floating projection topology optimization of vibro-acoustic structures with acoustic, poroelastic and elastic media

*Jie Hu (Guizhou University)
Jiachun Li (Guizhou University)
Song Yao (Central South University)
Xiaodong Huang (Swinburne University of Technology)

C8-2:
Study on topology optimization for specific ultra-low bandgaps

*Xinlin Xu (Nagoya University)
Hiroya Hoshiba (Nagoya University)
Koji Nishiguchi (Nagoya University)
Junji Kato (Nagoya University)

C8-3:
Large-scale transient topology optimization method based on time-frequency domain conversion and model reduction

*Mingying Cui (Shandong University)
Yongxin Qu (Shandong University)
Quhao Li (Shandong University)
Niels Aage (Technical University of Denmark)

C8-4:
Automatic Differentiation in Dynamic Topology Optimization

*Kevin Korner (Lawrence Livermore National Laboratory)
Brandon Talamini (Lawrence Livermore National Laboratory)
Julian Andrej (Lawrence Livermore National Laboratory)
Michael Tupek (Lawrence Livermore National Laboratory)
William Moses (University of Illinois Urbana-champaign)
Robert Rieben (Lawrence Livermore National Laboratory)
Tzanio Kolev (Lawrence Livermore National Laboratory)
Jamie Bramwell (Lawrence Livermore National Laboratory)
Dan White (Lawrence Livermore National Laboratory)
Jon Belof (Lawrence Livermore National Laboratory)
William Schill (Lawrence Livermore National Laboratory)

C8-5:
Peridynamic-Based Topology Optimization for Enhancing Fracture Resistance Under Dynamic Loads

*Jiaquan Feng (The Hong Kong University of Science and Technology)
Wenjing Ye (The Hong Kong University of Science and Technology)

D8: Novel approaches of topology optimization_22

Session Chair: Prof. Shikui Chen (State University of New York at Stony Brook)

11:00 - 13:00, 22 May, Thursday

D8-1:
Design Soft Pneumatic Actuator via Explicit Topology Optimization

*Xueyan Hu (Huanjiang Laboratory)
Zonghao Li (Zhejiang University)
Weiqiu Chen (Zhejiang University)

D8-2:
Alternating Topology Optimization for Buckling Structures with Size Constraints

*Manyu Xiao (Northwestern Polytechnical University)
Hanyu Duan (Northwestern Polytechnical University)
Zixian Yang (Northwestern Polytechnical University)
Weihong Zhang (Northwestern Polytechnical University)

D8-3:
Handling of multiple inequality constraints in the level set-based topology optimization using reaction-diffusion equation

*Makoto Tsukino (Quint Corporation)
Tsuguo Kondoh (Kyoto University)

D8-4:
On how to avoid the formation of hinges in compliant mechanisms using connectivity constraints

*David Ruiz (Universidad de Castilla-la Mancha)
Alberto Donoso (Universidad de Castilla-la Mancha)
Ernesto Aranda (Universidad de Castilla-la Mancha)

D8-5:
Multi-Valued Integer Programming Problems by Random Discrete Steepest Descent (RDSD) Algorithm

*Zeyu Deng (Dalian University of Technology)
Gengdong Cheng (Dalian University of Technology)
Yuan Liang (Dalian University of Technology)

E8: Multiscale optimization_2

Session Chair: Prof. Bin Niu (Dalian University of Technology)

11:00 - 13:00, 22 May, Thursday

E8-1:
On the topology optimization for functionally graded heat sinks with plate fins

*Shun Noguchi (Kyoto University)
Naoyuki Ishida (Kyoto University)
Ayami Sato (IHI Corporation)
Haruki Motegi (IHI Corporation)
Takahiro Shimada (IHI Corporation)
Shinji Nishiwaki (Kyoto University)
Kazuhiro Izui (Kyoto University)

E8-2:
Topology optimization of piezoelectric energy harvesters under low frequency harmonic loads

*Naoki Murai (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

E8-3:
Machine learning enhanced multiscale topology optimization with structural genome databases

*Wenyu Hao (Dalian University of Technology)
Zongliang Du (Dalian University of Technology)
Xu Guo (Dalian University of Technology)

E8-4:
Vibration damping design considering damping directionality

*Zhan Kang (Dalian University of Technology)
Jing Ma (Dalian University of Technology)
Xiaopeng Zhang (Dalian University of Technology)

E8-5:
Homogenization-based Multiscale Topology Optimization with Explicit De-homogenization for Extended Design Solution Space

*Yonghwa Ji (Gwangju Institute of Science and Technology)
Jaewook Lee (Gwangju Institute of Science and Technology)

F8: Novel approaches of shape optimization_8

Session Chair: Prof. Shujuan Hou (Hunan University)

11:00 - 13:00, 22 May, Thursday

F8-1:
Towards certification-ready and sustainable wind turbine blade designs: sandwich failure optimization and blade design implications

*Sebastian Hermansen (Aalborg University)
Gregor Borstnar (Gurit Wind Systems A/S)
Erik Lund (Aalborg University)

F8-2:
Robust Design Optimization Using Interpretable Self-Organizing Maps

*Mohd Aman Khalid (Indian Institute of Technology Madras)
Deepanshu Yadav (Indian Institute of Technology Madras)
Palaniappan Ramu (Indian Institute of Technology Madras)

F8-3:
Multilevel Optimization and Simulation: Designing Innovative Vascular Stent utilize Tensegrity Structure

*Zheyuan Chang (Waseda University)
Shintaro Yamasaki (Waseda University)

F8-4:
Reliability-based Truss Topology Optimization with Uncertain Expected Value of External Load via Semidefinite Programming

*Yoshihiro Kanno (The University of Tokyo)

F8-5:
Lagrangian-type Fiber bundle Placement Optimization of Carbon Fiber Reinforced Plastics and Planar Development of Curved Shells for Fabrication by 3D Printers

*Makito Kato (Graduate School of Engineering, Toyota Technological Institute)
Masatoshi Shimoda (Toyota Technological Institute)

F8-6:
Matrix-based shape sensitivity analysis for thin shell structures: A comparative study of analytical and numerical computations

*Kazuki Hayashi (Kyoto University)
Romain Mesnil (Ecole Nationale Des Ponts Et Chaussées)

G8: Novel approaches of sizing optimization_2

Session Chair: Prof. Michael Muskulus (Norwegian University of Science and Technology NTNU)

11:00 - 13:00, 22 May, Thursday

G8-1:

Optimal design of steel-reinforced concrete hybrid structure considering CO2 emissions based on life cycle assessment

*Hiroki Nishida (Kyoto University)
Kohei Fujita (Kyoto University)

G8-2:

Beam fail-safe optimization: Improving buildable damage-resistant optimum structures through element bending and rationalisation

*Edward Whiteside (University of Sheffield)
Helen Fairclough (University of Sheffield)
Sam Rigby (University of Sheffield)

G8-3:

Design of Customized Optimized Multistable Structures for Impact Resistance

*Zishen Wei (Dalian University of Technology)
Xiaopeng Zhang (Dalian University of Technology)

G8-4:

Size optimization of multiple spheres for the realization of exceptional points in acoustic field

*Hiromochi Itoh (The University of Tokyo)
Kei Matsushima (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

G8-5:

Multi-Phase Local Search Methods for the Optimum Design of Steel Building Frames

*Junnosuke Yoshikawa (Tokyo University of Science)
Makoto Yamakawa (Tokyo University of Science)
Kohei Ota (Tokyo University of Science)

H8: Optimization of metamaterials_4

Session Chair: Prof. Junji Kato (Nagoya University)

11:00 - 13:00, 22 May, Thursday

H8-1:
Topology optimization of multi-modal, graded and partial metamaterial treatments for broadband vibroacoustic attenuation in partition panels

*Daniele Giannini (Department of Civil Engineering, Ku Leuven)
Mattias Schevenels (Department of Architecture, Ku Leuven)
Edwin P.b. Reynders (Department of Civil Engineering, Ku Leuven)

H8-2:
Obstacle-Avoiding Topology Optimization of Rigid-body Mechanisms Using Spring-Connected Rigid Blocks

*Yoon Young Kim (Sookmyung Women'ts Univ & Seoul National Univ.)
Chan-eui Song (Seoul National University.)
Joongho Kim (Idea Ocean Inc.)

H8-3:
Optimizing Brittle Fracture Toughness of Two-Dimensional Cellular Microstructures

*Sukhminder Singh (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

H8-4:
Extreme nonlinearity by layered materials through inverse design

*Xiaojia Shelly Zhang (University of Illinois at Urbana Champaign)
Zhi Zhao (University of Illinois Urbana-champaign)
Rahul Kundu (University of Illinois Urbana-champaign)
Ole Sigmund (Technical University of Denmark)

I8: General optimization topics_2

Session Chair: Prof. Kazuyuki Hanahara (Iwate University)

11:00 - 13:00, 22 May, Thursday

I8-1:

Applying a fully automated coordinate system transformation to construct multifidelity radial basis function surrogates

*Schalk Kok (University of Pretoria)
Daniel Nicolas Wilke (University of Witwatersrand)
Johann Bouwer (University of Pretoria)

I8-2:

Formulation and regularization of the optimization problem for adjoint-based digital twin construction

*Ihar Antonau (Technical University of Braunschweig)
Suneth Warnakulasuriya (Technical University of Munich)
Talhah Ansari (Technical University of Munich)
Facundo Airaudo (George Mason University)
Harbir Antil (George Mason University)
Rainald Löhner (George Mason University)
Roland Wüchner (Technical University of Munich)

I8-3:

Extended Newton-Raphson Method for Material Constants Identification Problems

*So Fukuhara (Kagawa University)
Kenzen Takeuchi (Kagawa University)
Toshiaki Hirate (Toshiba Industrial Products and Systems Corporation)
Masao Arakawa (Waseda University)

I8-4:

Quantification of Geometric Uncertainty using Isogeometric Analysis and Interval Methods

*Jan Liedmann (University of Stuttgart)
Nataly Manque Roa (Tu Dortmund University)
Matthias Faes (Tu Dortmund University)
Marcos Valdebenito (Tu Dortmund University)
Franz-joseph Barthold (Tu Dortmund University)

I8-5:

A DeepONet-based Approximate Bayesian Inference Method for Accurate Parameter Estimation in GISSMO

*Weihao Zhou (Hunan University)
Haihua Wang (Hunan University)
Enying Li (Central South University of Forestry and Technology)
Hu Wang (Hunan Univesity)
Guangyao Li (Beijing Institute of Technology Shenzhen Automotive Research Institute)

J8: Multi-physics optimization_4

Session Chair: Dr. Masaki Otomori (Kyoto University)

11:00 - 13:00, 22 May, Thursday

J8-1:
Topology Optimization of Vibroacoustic Black Holes through Boundary Interpolations

*Jonathan Mirpourian (Technical University of Denmark (DTU))
Glaucio H. Paulino (Princeton University)
Niels Aage (Technical University of Denmark (DTU))

J8-2:
Topology Optimization of transient fluid-structure interaction problems considering binary design variables and explicit smooth boundaries

Lucas Siqueira (University of São Paulo)
Shun Noguchi (Kyoto University)
Ishida Naoyuki (Kyoto University)
Emílio Silva (University of São Paulo)
Shinji Nishiwaki (Kyoto University)
*Renato Picelli (University of São Paulo)

J8-3:
Topology Optimization of Soft Pneumatic Actuators

*Konstantinos Poulios (Technical University of Denmark)
Sumit Mehta (Technical University of Denmark)

J8-4:
Narrow-Band Topology Optimization for Large-Scale Thermal-Fluid Applications

*Vladislav Pimanov (University of California San Diego)
John-paul Sabino (The Boeing Company)
Michael Stoia (The Boeing Company)
H. Alicia Kim (University of California San Diego)

J8-5:
Topology Optimization for Moving Objects in Fluids

*Yuta Tanabe (Tokyo University of Science)
Kentaro Yaji (Osaka University)
Kuniharu Ushijima (Tokyo University of Science)

K8: Optimization of materials_3

Session Chair: Prof. Mathias Wallin (Lund University)

11:00 - 13:00, 22 May, Thursday

K8-1:
Constitutive Parameter Inversion Method for Fiber Metal Laminates Based on Coupled Experiment-Simulation Optimization

*Yang Ni (Dalian University of Technology)
Gang Li (Dalian University of Technology)

K8-2:
Stacking optimization of drop-off laminated composites under empirical stacking constraints and its verification by FEM analysis

*Nozomu Kogiso (Osaka Metropolitan University)
Yuki Ishikawa (Osaka Metropolitan University)

K8-3:
Introducing steered fibers in a stacking sequence table for improved stiffness matching in a bi-level composite optimization

*Lander Vertonghen (Dmas, Onera, Université Paris-saclay)
François-xavier Irisarri (Dmas, Onera, Université Paris-saclay)
Cédric Julien (Dmas, Onera, Université Paris-saclay)

K8-4:
Low rank solvers for learning homogenized tensors

*Javier Bevia Ripoll (Ku Leuven)
Florian Feppon (Ku Leuven)

K8-5:
Composite multi-cell laminates optimization considering manufacturing constraints with conventional and double-double layups

Alejandro Garcia Pis (University of Toulouse, Ica)
*Christian Gogu (University of Toulouse, Isae-supaero, Ica)
Laurent Michel (University of Toulouse, Isae-supaero, Ica)
Stephane Grihon (Airbus Operations Sas)
Simone Coniglio (Airbus Operations Sas)

K8-6:
Data-driven FEM cluster-based basis reduction method for ultimate load-bearing capacity analysis and optimization of structures under variable loads

*Yinghao Nie (Dalian University of Technology)
Xiuchen Gong (Dalian University of Technology)
Qian Zhang (Dalian University of Technology)
Gengdong Cheng (Dalian University of Technology)

A9: Novel approaches of topology optimization_23

Session Chair: Prof. Andrzej Myslinski (Systems Research Institute)

9:00 - 10:40, 23 May, Friday

A9-1:
Continuous structural form for multiple tuned mass dampers optimized for wide-band loads

*Takeru Igusa (Johns Hopkins University)
Yakov Zelickman (Johns Hopkins University)
Michael Whitten (Johns Hopkins University)
James Guest (Johns Hopkins University)

A9-2:
A moving morphable component (MMC)-based topology optimization method for underwater sound absorption materials using a mixed finite element formulation

Chen Lu (Dalian University of Technology)
*Wenjiong Chen (Dalian University of Technology)
Shutian Liu (Dalian University of Technology)

A9-3:
Topology optimization of thermal eigenvalue problems considering maximum steady-state temperature

*Shuya Onodera (The University of Tokyo)
Takayuki Yamada (The University of Tokyo)

A9-4:
Pseudo-concave optimization of the first eigenvalue of elliptic operators in topology optimization by homogenization

*Akatsuki Nishioka (The University of Tokyo)

A9-5:
Topology Optimization of Sliding Surface Texture via Discrete Variable using SAIP

*Zhigang Dai (Dalian University of Technology)
Weisheng Zhang (Dalian University of Technology)

B9: Data-driven, machine-learning and surrogate modeling based optimization_16

Session Chair: Prof. Masao Arakawa (Waseda University, IPS)

9:00 - 10:40, 23 May, Friday

B9-1:

Multi-source Heterogeneous Data-driven Optimization Design for Automobile Occupant Restraint System Based on Multimodal Composite Convolutional Neural Network

*Wenjie Wang (Shanghai Jiao Tong University)
Zhao Liu (Shanghai Jiao Tong University)
Ping Zhu (Shanghai Jiao Tong University)

B9-2:

Machine learning aided robust optimization of rainbow metamaterials for low-frequency vibration reduction

*Minghui Zhang (The University of Technology Sydney)
Zhen Luo (The University of Technology Sydney)

B9-3:

Controller Embedded Optimization Of A Direct Air Capture Plant Enabled Through Surrogate Modelling

Markus Edwin Schatz (Coorporate University of Baden-württemberg)
Sigurd Riedmayer (Riedmayer E&m Gmbh)
Leon Ketscher (Airbus Operations)
Viktor Fetter (Airbus Operations)
*Antje Bulmann (Airbus Operations)

B9-4:

A PointNet-Enhanced Deep Operator Network for Nonlinear Analysis of Non-Parametric 3D Geometries Under Varying Load Conditions

*Jangseop Park (Korea Advanced Institute of Science and Technology (kaist))
Namwoo Kang (Korea Advanced Institute of Science and Technology (kaist), Narnia Labs)
Namwoo Kang (Narnia Labs, KAIST)

B9-5:

Analysis and Optimisation of Generalised Periodic Lattice Structures Incorporating Machine Learning

*Chuang Ma (Dalian University of Technology)
Yichao Zhu (Dalian University of Technology)

C9: Optimization of dynamic problems_2

Session Chair: Prof. Jie Hu (Guizhou University)

9:00 - 10:40, 23 May, Friday

C9-1:

Control Co-Design of Geometrically Nonlinear Piezoelectric Actuators using Topology Optimization

Ying-kuan Tsai (Northwestern University)
Liwei Wang (Carnegie Mallon University)
*Wei Chen (Northwestern University)

C9-2:

Design of TMDs for the vibration serviceability of footbridges using simultaneous sizing and topology optimization

*Nele Uyttebroeck (Ku Leuven)
Mattias Schevenels (Ku Leuven)
Geert Lombaert (Ku Leuven)

C9-3:

Structural Topology and Control Parameter Co-Optimization with Time Delay

*Casper Kerkhove (Delft University of Technology)
Matthijs Langelaar (Delft University of Technology)
Hassan Hosseinnia (Delft University of Technology)

C9-4:

Stochastic design optimization for mechanical properties using molecular dynamics simulations

*Myung-hoon Oh (Seoul National University)
Woon-jae Park (Seoul National University)
Hyun-seok Kim (Korea Research Institute of Ships and Ocean Engineering)
Seonho Cho (Seoul National University)

C9-5:

Topology optimization method for phononic crystals with customized performance and experimental verification

*Qiangbo Wu (Dalian University of Technology)
Quhao Li (Shandong University of Technology)
Shutian Liu (Dalian University of Technology)

D9: Novel approaches of topology optimization_24

Session Chair: Prof. Qi Xia (Huazhong University of Science and Technology)

9:00 - 10:40, 23 May, Friday

D9-1:

Unity and Typicality: Aesthetic Guidelines for Topology Optimization

*Jun Wu (Delft University of Technology)
Jesse Hols (Delft University of Technology)
Paul Hekkert (Delft University of Technology)

D9-2:

Topology optimization of two-scale structures with minimum width control in microscale by combining the M-VCUT model with the BESO scheme

*Ye Tian (Huazhong University of Science and Technology)
Qi Xia (Huazhong University of Science and Technology)

D9-3:

Imposing manufacturing constraints in topology optimization with polygonal feature mapping

*Yakov Zelickman (Johns Hopkins University)
James K. Guest (Johns Hopkins University)

D9-4:

Industrial Optimization of Casted Components - Improvements considering the Filling and Solidification

*Robert Thume (Altair Engineering)
Christian Bohnenberger (Altair Engineering)
Jens Triller (Altair Engineering)
Moritz Frenzel (Altair Engineering)

E9: Multiscale optimization_3

Session Chair: Prof. Kentaro Yaji (The University of Osaka)

9:00 - 10:40, 23 May, Friday

E9-1:
Multi-scale analysis and optimization design of impact-resistant lattice filled structure

*Chenguang Zhang (Dalian University of Technology)
Kun Yan (Dalian University of Technology)
Jun Yan (Dalian University of Technology)

E9-2:
A subspace method for efficient multiscale heat sink modelling and optimization

*Dilaksan Thillaithevan (Imperial College London)
Robert Hewson (Imperial College London)
Matthew Santer (Imperial College London)
Alex Carver (Toffeex)
Giannis Nikiteas (Toffeex)
Nicholas Raske (Toffeex)

E9-3:
Towards homogenisation-based topology optimisation and de-homogenisation of convection-dominant heat transfer

*Hao Li (University of Southern Denmark)
Joe Alexandersen (University of Southern Denmark)

E9-4:
The Quest for Mechanical Sentience: Design of Responsive Structures via integration of Topology Optimization, Smart Materials & 4D Printing

*Anurag Bhattacharyya (Lawrence Livermore National Laboratory)
Jinyoung Kim (Seoul National University)
Kai A. James (Georgia Institute of Technology)

E9-5:
Basic Study of Thermal Dispersion Effect on Microstructural Topology Optimization

*Keisuke Takaara (Nagoya University)
Hiroya Hoshiba (Nagoya University)
Koji Nishiguchi (Nagoya University)
Junji Kato (Nagoya University)

F9: Novel approaches of shape optimization_9

Session Chair: Prof. Yoshihiro Kanno (The University of Tokyo)

9:00 - 10:40, 23 May, Friday

F9-1:
Holistic structural design and limit analysis via rapid layout and discontinuity optimization: optimal retrofitting of floor slabs

*Linwei He (University of Sheffield)
Colin Smith (University of Sheffield)
Carina Chan (Swanton Consulting)
Matthew Gilbert (University of Sheffield)

F9-2:
An efficient GPU solver for large-scale topology optimization of continuous fibre-reinforced composites considering eigenfrequencies

*Tianyuan Qi (Beihang University)
Junpeng Zhao (Beihang University)
Chunjie Wang (Beihang University)

F9-3:
Realiability-based Design Optimzation of Solid Problems using Isogeometric Approach

*Hoon Jeong (University of Seoul)
Seung-hyun Ha (Korea Maritime & Ocean University)
Hyunkyoo Cho (Mokpo National University)
Hyun-seok Kim (Korea Research Institute of Ships & Ocean Engineering)
Minho Yoon (University of Seoul)

F9-4:
Stacking Sequence Optimization for OHT Strength of Composite Using Bayesian Prediction Model in Lamination Parameter Space

*Yu Iwaki (Osaka Metropolitan University)
Nozomu Kogiso (Osaka Metropolitan University)

A10: Novel approaches of topology optimization_25

Session Chair: Prof. Wenjiong Chen (Dalian University of Technology)

11:00 - 13:00, 23 May, Friday

A10-1:

Vibro-acoustic topology optimization of sound transmission loss through three-dimensional sandwich structures

*Tom De Weer (Ku Leuven)
Vanessa Cool (Ku Leuven)
Elke Deckers (Ku Leuven)

A10-2:

Bilevel optimization for mechanical wave tailoring of non-linear metamaterials exploring breaking of superposition principle

*Caglar Tamur (University of California, San Diego)
Haning Xiu (University of California, San Diego)
Brianna Macnider (University of California, San Diego)
Nicholas Boechler (University of California, San Diego)
Alicia Kim (University of California, San Diego)

A10-3:

Statistical Topology Optimization Framework for Orthotropic Structures: Damage and Angle Variation Detection

*Jae Yeop Na (Hanyang University)
Gil Ho Yoon (Hanyang University)

A10-4:

Robust Multiscale Topology Optimization under Uncertainty Using Multifidelity Monte Carlo Method

*Hussein Ismail (University of California San Diego)
Álvaro Diaz-flores Caminero (University of California San Diego)
Anirban Chaudhuri (University of Texas at Austin)
Karen E Willcox (University of Texas at Austin)
H Alicia Kim (University of California San Diego)

A10-5:

Topology optimization of Multi-scale Elasto-plastic Structures Considering Lattice Microstructures

Jun Yan (Dalian University of Technology)
*Zhihui Liu (Dalian University of Technology)
Yinghao Nie (Dalian University of Technology)

A10-6:

MITOD: An Interactive design method for topology optimization design

*Jinjia Liu (South China University of Technology)
Peng Wei (South China University of Technology)
Liang Cheng (South China University of Technology)

B10: Data-driven, machine-learning and surrogate modeling based optimization_17

Session Chair: Dr. Yohei Yokosuka (Kagoshima University)

11:00 - 13:00, 23 May, Friday

B10-1:
Optimization of cellular-structured heat sinks based on Voronoi tessellation and machine learning

*Asuka Suzuki (Nagoya University)
Hideto Nakatani (Nagoya University)
Soya Nakagawa (Nagoya University)
Makoto Kobashi (Nagoya University)
Yoshiyuki Tsuji (Nagoya University)

B10-2:
Machine learning-aided optimization of cellular-structured heat sinks designed by Voronoi tessellation with various numbers of seed points

*Koya Ogura (Nagoya University)
Hideto Nakatani (Nagoya University)
Asuka Suzuki (Nagoya University)
Naoki Takata (Nagoya University)
Makoto Kobashi (Nagoya University)

B10-3:
An efficient sampling strategy for a multi-fidelity surrogate

*Juyoung Lee (Korea Advanced Institute of Science and Technology)
Mingyu Lee (Korea Advanced Institute of Science and Technology)
Byeong Uk Song (Korea Advanced Institute of Science and Technology)
Ikjin Lee (Korea Advanced Institute of Science and Technology)

B10-4:
Enhancing the diversity of solutions in system design optimization

*Lucas Baraton (Isae-supaero/onera)
Annafederica Urbano (Isae-supaero)
Loïc Brevault (Onera)
Mathieu Balesdent (Onera)

B10-5:
Development of an Image Generation AI Based Optimization Framework for Aesthetic design

*Hiroki Kishimoto (Toyota Technological Institute)
Masakazu Kobayashi (Toyota Technological Institute)

B10-6:
Topology Optimization and Feature Extraction of Multiscale Lattice Structures using Convolutional Neural Network

*Tomoya Matsuoka (Kyoto University)
Makoto Ohsaki (Kyoto University)
Kazuki Hayashi (Kyoto University)

C10: Optimization of dynamic problems_3

Session Chair: Prof. Seonho Cho (Seoul National University)

11:00 - 13:00, 23 May, Friday

C10-1:

Topology optimization method for stiffener layout design of curved thin-walled structures under stochastic excitations

Haotian Yang (Dalian University of Technology)
*Renjing Gao (Dalian University of Technology)
Shutian Liu (Dalian University of Technology)

C10-2:

Multi-material polygonal topology optimization for incompressible structures under harmonic force excitation

*Hieu Phuc Ban (Sejong University)
Minh-ngoc Nguyen (Sejong University)
Soomi Shin (Pusan National University)
Dongkyu Lee (Sejong University)

C10-3:

Topology Optimization of Discrete Variables Related to Large-Scale High Order Eigenvalues Based on High Frequency Harmonic Excitation Response

*Yuan Liang (Dalian University of Technology)
Peijin Wang (Dalian University of Technology)
Zeyu Deng (Dalian University of Technology)
Dixiong Yang (Dalian University of Technology)

C10-4:

Wrinkling-free Topology Optimized Quantum Nanomechanical Resonators

*Victor Pisinger (Technical University of Denmark)
Niels Aage (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

C10-5:

Topology optimization of structures with stress, free vibration and linear buckling constraints

*Iván Couceiro (University of A Coruña)
Martín Rey (University of A Coruña)
José París (University of A Coruña)
Luis Ramírez (University of A Coruña)
Fermín Navarrina (University of A Coruña)

D10: Novel approaches of topology optimization_26

Session Chair: Prof. Junpeng Zhao (Beihang University)

11:00 - 13:00, 23 May, Friday

D10-1:

Integrating Body-Fitted Meshes in Topology Optimization: Methods and Applications

*Zicheng Zhuang (Rmit University)
Yi Min Xie (Rmit University)

D10-2:

Concurrent topology optimization of two-scale thermoelastic structures with microscopic stress constraints

*Zheng Ni (Dalian University of Technology)
Yuhao Bao (Dalian University of Technology)
Xiaopeng Zhang (Dalian University of Technology)
Zhan Kang (Dalian University of Technology)
Xiaopeng Zhang (Dalian University of Technology)
Zhan Kang (Dalian University of Technology)

D10-3:

Optimizing Multiscale Structures with Yield Stress Constraints and Enhanced Microstructure Design

*Christoffer Fyllgraf Christensen (Technical University of Denmark)
Fengwen Wang (Technical University of Denmark)
Ole Sigmund (Technical University of Denmark)

D10-4:

Topology optimization design under stiffness, strength, and temperature constraints over a wide range of temperatures

*Qingxuan Meng (Hebei University of Engineering)
Bin Xu (Northwestern Polytechnical University)

D10-5:

Stress-constraints based on aggregation functions and lagrange penalty methods for contact-constrained topology optimization

*Timo Schmidt (Hamburg University of Technology)
Robert Seifried (Hamburg University of Technology)

E10: Multiscale optimization_4

Session Chair: Dr. Anurag Bhattacharyya (Lawrence Livermore National Laboratory)

11:00 - 13:00, 23 May, Friday

E10-1:

Topology optimization of anisotropic micro-pin-fin heat sinks based on homogenization method

*Sheng Ma (Northwestern Polytechnical University)
Ying Zhou (Northwestern Polytechnical University)
Weihong Zhang (Northwestern Polytechnical University)

E10-2:

Multiscale Topology Optimization of Structures using a Three Scale Concurrent Analysis

*Claudia Marcela Perez Madrid (University of Campinas)
Renato Pavanello (University of Campinas)

E10-3:

Two-scale topology optimization of vibrating structures with lattice

*Bin Niu (Dalian University of Technology)
Zhihui Liu (Dalian University of Technology)
Xiaotian Liu (Dalian University of Technology)

E10-4:

An 808 line phasor-based dehomogenisation Matlab code for multi-scale topology optimisation

Rebekka Varum Woldseth (Centre Inria, Université de Lorrain)
Ole Sigmund (Department of Civil and Mechanical Engineering, Technical University of Denmark)
*Peter Dørffler Ladegaard Jensen (Department of Civil and Mechanical Engineering, Technical University of Denmark)

E10-5:

Evolutionary De-Homogenization: Multifidelity-Multiscale Topology Optimization

*Kentaro Yaji (The University of Osaka)
Shuzhi Xu (The University of Osaka)
Hiroki Kawabe (The University of Osaka)

F10: Novel approaches of shape optimization_10

Session Chair: Prof. Kazuo Yonekura (The University of Tokyo)

11:00 - 13:00, 23 May, Friday

F10-1:
Explicit composite ply location, orientation and shape optimization via a feature-mapping method

*Florent Savine (Dassault Systemes)
Pierre Yves Mechin (Dassault Systemes)
Julie Barre (Dassault Systemes)
Emir Touajni (Dassault Systemes)

F10-2:
A Key Step in the Shape Design of Compliant Mechanisms Guided by Graphic Statics

*Deepak Kumar Gupta (Indian Institute of Science Bengaluru)
G K Ananthasuresh (Indian Institute of Science Bengaluru)

F10-3:
Fracture Based Design Optimization for Dental Structures

*Zhongpu Zhang (Western Sydney University)
Boyang Wan (The University of Sydney)
Venus Savaliya (Western Sydney University)
Richard (chunhui) Yang (Western Sydney University)
Qing Li (The University of Sydney)

F10-4:
Integrating Human Creativity into Structural Optimization: A Human-In-The-Loop Approach

*Jonathan Melchiorre (Politecnico di Torino)
Amedeo Manuello Bertetto (Politecnico di Torino)
Giuseppe Carlo Marano (Politecnico di Torino)
Sigrid Adriaenssens (Princeton University)

F10-5:
Length scale control for level set-based topology optimization through spread skeletons

*Nils Hermann (Delft University of Technology)
Lise Noël (Delft University of Technology)

G10: Novel approaches of sizing optimization_3

Session Chair: Prof. Vu Truong Vu (Nguyen Tat Thanh University)

11:00 - 13:00, 23 May, Friday

G10-1:

Design Optimization of Multi-Local Resonance Metamaterials for Broadband Vibration Reduction in the Low-Frequency Range

*Kwangjin Kim (Gyeongsang National University)
Junghwan Kook (Gyeongsang National University)

G10-2:

A Unified Design Continuum-Driven Optimization Framework for Force-Flow Stiffener Layout Using Subdivision Nested Models

*Lingzhi Jin (Dalian University of Technology)
Peng Hao (Dalian University of Technology)
Rui Qian (Dalian University of Technology)

G10-3:

Heterogeneous Multi-agent Reinforcement Learning for Optimal Design of 3D Steel Frames as Assembly of 2D-frames

*Kotaro Takenaka (The University of Kyoto)
Makoto Ohsaki (The University of Kyoto)
Makoto Yamakawa (Tokyo University of Science)
Kazuki Hayashi (The University of Kyoto)

G10-4:

Exploration of Parametric Optimization for Silencer Structures in Air-Cooled Ducts of Onboard Battery Packs in Hybrid Vehicles

*Shotaro Hayashi (Toyota Battery Co., Ltd.)
Keisuke Asai (Toyota Battery Co., Ltd.)
Shozo Fuji (Toyota Battery Co., Ltd.)
Nagisa Yamamoto (Siemens K.k.)

G10-5:

A Practical Two-Stage Seismic Design Optimization Framework for RC Structures under Uncertainties

*Lili Weng (Tongji University)
Jianbing Chen (Tongji University)
Hector A. Jensen (Universidad Tecnica Federico Santa Maria)

G10-6:

Gradient-based optimization of beam models under fatigue constraints

*Michael Muskulus (Norwegian University of Science and Technology Ntnu)

J10: Multi-physics optimization_5

Session Chair: Prof. Renato Picelli (University of Sã¯ Paulo)

11:00 - 13:00, 23 May, Friday

J10-1:
Topology Optimization of Film Cooling Hole Layouts Using the MMC-Adam Framework

*Huidong Tang (Beihang University)
Jianqin Zhu (Beihang University)
Zhi Tao (Beihang University)
Lu Qiu (Beihang University)

J10-2:
Screw-type pumping design through a frozen rotor-based topology optimization approach

*Diego Hayashi Alonso (University of São Paulo)
Julio Romano Meneghini (University of São Paulo)
Emílio Carlos Nelli Silva (University of São Paulo)

J10-3:
A Formulation of the Continuous Adjoint Problem for Level Set Topology Optimization of External Flow Problems using the Lattice Bhatnagar-Gross-Krook Method

*Angka Bayu Putranto (Institut Teknologi Bandung)
Pramudita Satria Palar (Institut Teknologi Bandung)
Theodoros Michelis (Delft University of Technology)
Lavi Rizki Zuhal (Institut Teknologi Bandung)

J10-4:
Performance impact of section-based topology optimization in plate-fin heat exchangers

*Mario Nakayama (Sumitomo Precision Products)
Fukui Kenichiro (Sumitomo Precision Products)

J10-5:
Multiphysics Based Optimization for Electrification: Parametric and Topology Strategies

*Naoki Ohmura (IHI Corporation)
Ryusho Nakazawa (IHI Corporation)

K10: Optimization of materials_4

Session Chair: Prof. Erik Lund (Aalborg University)

11:00 - 13:00, 23 May, Friday

K10-1:
Multi-material topology optimization for elastoplastic materials

*Jike Han (Kyoto University)
Yuki Yamakawa (Tohoku University)
Kazuhiro Izui (Kyoto University)
Shinji Nishiwaki (Kyoto University)
Kenjiro Terada (Tohoku University)

K10-2:
Topology optimization of elasto-plasticity approximated by deformation-elasticity

*Mathias Wallin (Lund University)
Kai Li (Dalian University of Technology)
Matti Ristinmaa (Lund University)
Gengdong Cheng (Dalian University of Technology)

K10-3:
Curve-fitting Topology Optimization Considering Large Deformation of Microstructures

*Tomoaki Shimada (Nagoya University)
Yuya Okuda (Yamaha Motor Co., Ltd.)
Daiki Watanabe (Toyota Technological Institute)
Hiroya Hoshiba (Nagoya University)
Koji Nishiguchi (Nagoya University)
Junji Kato (Nagoya University)

K10-4:
Designing Compliant Self-Locking Structures Using Topology Optimization

*Gunnar Granlund (Division of Solid Mechanics, Lund University)
Mathias Wallin (Division of Solid Mechanics, Lund University)

K10-5:
Experimental comparison of reinforced concrete beams designed with tailored topology optimization approaches

*Jackson Jewett (MIT)
Josephine Carstensen (MIT)