

Parallel Session 1 **Mon 5th June 2023** **09:00-10:40**
Topology Opt: Multiphysics/ Biomedical problems

Chair: Prof Kai James **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|--|---------------------------|-----|--|
| 360 | Three-Dimensional Multi-Material Topology Optimization Considering Interface Behavior | Mr Robert Renz | 388 | Karlsruhe Institute of Technology |
| 466 | Automating parameter tuning of topology optimization through surrogate modeling | Prof Josephine Carstensen | 524 | Massachusetts Institute of Technology |
| 387 | Explicit topology optimization for flexoelectric shell nanostructures | Mr Xiaoye Yan | 410 | Dalian University of Technology |
| 350 | Deep learning-based patchwise 3D bone microstructure reconstruction | Mr Hyukjin Koh | 563 | Korea Advanced Institute of Science and Technology (KAIST) |
| 321 | Deep Learning-based Design Methodology of a Phononic Crystal with a Defect for Narrow Bandpass Filtering | Mr Donghyu Lee | 574 | Seoul National University |
| | | | | |

Parallel Session 1 **Mon 5th June 2023** **09:00-10:40**
Optimisation Algorithms 1

Chair: Prof Frank Naets **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------------|-----|---------------------------------------|
| 306 | Neural Network Inspired Transfer Learning for Optimization | Ms Suja Shree Ravichandran | 373 | Indian Institute of Technology Madras |
| 136 | A Constrained Multifidelity Quasi-Newton Optimization Method | Prof Markus Rumpfkeil | 241 | University of Dayton |
| 305 | Box-Wing Shape Optimisation of eVTOL UAM Aircraft Using Multi-Step Hybrid GA-SQP Strategy | Ms Min Ji Kim | 294 | Konkuk University |
| 146 | FFT-based Inverse Strength Homogenization for Cellular Material Design | Ms Cong Wang | 47 | RMIT University |
| 10 | Non-Convex, Mixed Categorical-Continuous variable structural optimization applied to Metallic Stiffened Panel sizing. | Dr Simone Coniglio | 36 | Airbus Operations |
| | | | | |

Parallel Session 1 **Mon 5th June 2023** **09:00-10:40**
Structural Optimization: Civil & Structural Eng. 1

Chair: Prof axel Schumacker

Room: Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------|-----|--------------------------------|
| 116 | Ensuring connectivity for the topology optimization of vibro-acoustic sandwich structures | Miss Vanessa Cool | 48 | KU Leuven, LMSD; Flanders Make |
| 42 | Broadband optimization of ribbed floors for impact sound insulation | Mr Heitor Nigro Lopes | 89 | University of Campinas |
| 99 | Member adding and adaptive solution techniques: applications in elastic design | Dr Helen Fairclough | 199 | University of Sheffield |
| 362 | Seismic Topology Optimization of High-Rise Buildings using Modal Decomposition and the Adjoint Method | Dr Amory Martin | 245 | Exponent |
| 410 | Design of 50MN Hydraulic Support Test Bench and Optimization of Middle Beam Pin Shaft Nodes | Ms Jie Wang | 453 | Liaoning Technical University |
| | | | | |

Parallel Session 1 **Mon 5th June 2023** **09:00-10:40**
Topology Opt: Additive Manufacture 1

Chair: Prof Erik Lund **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------------------|-----|------------------------------------|
| 297 | De-homogenization of topology optimized designs using Stream Surfaces. | Mr Tim Felle Olsen | 201 | Technical University of Denmark |
| 347 | Large-scale level set for topology optimization of cooling channels | Mr Douglas De Aquino Castro | 398 | University of California San Diego |
| 46 | Towards the design of additive-manufacturing-ready conformal cooling channels through topology optimization | Dr Marc-Etienne Lamarche-Gagnon | 28 | National Research Council Canada |
| 101 | An efficient multi-material topology optimization method for thermoelastic structures | Dr Tien Dung Dinh | 29 | Ghent University |
| 332 | Topology optimization with independently bound uncertain loads | Mr Hampus Hederberg | 147 | Linköping University |
| | | | | |

Parallel Session 1 **Mon 5th June 2023** **09:00-10:40**
Topology Opt: Thermal & Fluid Eng. 1

Chair: Dr Federico Ferrari **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|--|---------------------|-----|------------------------------------|
| 153 | Topology optimization of fully coupled transient nonlinear thermo-mechanical problems | Mr Gunnar Granlund | 263 | Lund University |
| 224 | A 3D surface smoothing tool for binary topology optimization applied to fluid-structure interaction problems | Mr Rômulo Cortez | 101 | University of São Paulo |
| 274 | Level Set Topology Optimization for Coupling Multiphysics with Automatic Differentiation | Dr Andreas Neofytou | 353 | University of California San Diego |
| 435 | Discrete variable topology optimization of microchannel composite structure under active cooling | Dr Xinyu Yan | 503 | Dalian University of Technology |
| 76 | Topology optimization of electromagnetic metasurfaces in microwave region | Prof Yongbo Deng | 62 | Chinese Academy of Sciences |
| | | | | |

Parallel Session 1 **Mon 5th June 2023** **09:00-10:40**
MDO: Aerospace applications 1

Chair: Prof James Guest **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------|-----|--------------------------------|
| 323 | Optimizing Component Placement and Temperature Control in Spacecraft Payloads Using Solution-Compensation Spaces | Mr Philipp Radecker | 75 | Technical University of Munich |
| 9 | Design of a Large Aspect Ratio Wing using Equivalent Static Gust Loads and Aeroelastic Constraints | Mr Joshua Deslich | 77 | University of Dayton |
| 45 | Optimization Techniques for Architectural Exploration of Electric Aircraft Propulsion Systems | Mr Benedikt Aigner | 121 | Collins Aerospace |
| 96 | Bayesian optimization formulation for constrained multidisciplinary problems | Miss Inês Cardoso | 129 | ONERA Toulouse |
| 473 | Topology optimization of multimodal local resonators for vibroacoustic metamaterials with improved broadband sound insulation | Dr Daniele Giannini | 526 | KU Leuven |
| | | | | |

Parallel Session 1 **Mon 5th June 2023** **09:00-10:40**
Struct/Aero Applications

Chair: Prof Weisheng Zhang **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------------|-----|---|
| 193 | Minimum compliance design with the constraint on material anisotropy | Dr Grzegorz Dzierzanowski | 257 | Warsaw University of Technology |
| 164 | Multi-fidelity modeling for predicting bearing's remaining useful life | Prof Yoojeong Noh | 231 | Pusan National University |
| 433 | A game theoretic approach for design of advanced non-periodic 3D woven composite preforms at component scale | Dr Zhenpei Wang | 495 | a*STAR Institute of High Performance Computing (IHPC) |
| 352 | Multidisciplinary Design Optimization for Thermoplastic Welding: new frontiers for light-weight structures in aerospace | Dr Rémy Garcia | 401 | Collins Aerospace Applied Research & Technology |
| | | | | |
| | | | | |

Parallel Session 2 **Mon 5th June 2023** **11:20-13:00**
AI Methods 1

Chair: Prof Janos Logo **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------|-----|--|
| 449 | Computational Analysis and Inverse Design of Deformable Origami Metamaterials | Mr Yuheng Yan | 509 | TU Delft |
| 481 | WGAN-based real-time generative design of optimized structures with various diversities and structural complexities | Mr Xinyu Ma | 521 | Dalian University of Technology |
| 497 | Vision-Based Multi-Target Tracking Strategy for UAV Mission with Deep Reinforcement Learning | Ms Sujin Kang | 506 | Konkuk University |
| 150 | Implementation of the density-based acoustic topology optimization by utilizing reinforcement learning | Dr Kee Seung Oh | 46 | Ulsan National Institute of Science and Technology |
| 404 | A Time-dependent Machine learning-based Optimization Design for Promoting Bone Regeneration in Functionally Graded Scaffolds | Dr Chi Wu | 446 | University of Sydney |
| | | | | |

Parallel Session 2 **Mon 5th June 2023** **11:20-13:00**
Topology Opt: Aerospace 1

Chair: Dr Emmanuel Tromme **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------|-----|--|
| 547 | Topology optimization considering 5-axis milling manufacturing constraints | Dr Ming Zhou | 560 | Altair |
| 299 | Topology optimization for the distribution of turbulent flows | Mr Lukas C. Høghøj | 236 | Technical University of Denmark |
| 406 | Structural analysis and topology optimization of continua using regular background mesh | Ms Linjuan Ren | 371 | Beijing Institute of Technology |
| 218 | Level-Set Parameter-Free Topology Optimization with Conformal Analysis Meshes | Dr Mathias Schmidt | 303 | Lawrence Livermore National Laboratory |
| 275 | A regularization strategy for avoiding non-physical modes in buckling topology optimization | Dr Federico Ferrari | 355 | DTU |
| | | | | |

Parallel Session 2 **Mon 5th June 2023** **11:20-13:00**
Topology Opt: Automotive Applications 1

Chair: Prof Eddie Wadbro **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|--|----------------------|-----|--------------------------------|
| 68 | How mathematical optimization algorithms and heuristics derived from expert knowledge can interact to optimize the topology of crash structures | Prof Axel Schumacher | 154 | University of Wuppertal |
| 31 | Crashworthiness Optimization via Improved Hierarchical Kriging-based Multi-fidelity Schemes | Arne Kaps | 32 | Technical University of Munich |
| 73 | Optimizing Inlay Structures for a Thin-Walled Crash Loaded Tube Element by using the Graph and Heuristic Based Topology Optimization | Mr Florian Beyer | 159 | University of Wuppertal |
| 20 | Using the graph and heuristic based topology optimization to design a crash loaded composite structure consisting of several tape winding profiles | Dr Dominik Schneider | 92 | University of Wuppertal |
| 557 | Crashworthiness design using Difference-based equivalent static Loads | Jens Triller | 638 | Altair |
| | | | | |

Parallel Session 2 **Mon 5th June 2023** **11:20-13:00**
Parallel Computing/Parametric Identification

Chair: Dr Kentaro Yaji **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|---|--------------------|-----|---|
| 93 | An Optimized, Easy-to-use, Open-source GPU Solver for Large-scale Inverse Homogenization Problems | Dr Xiaoya Zhai | 178 | University of Science And Technology of China |
| 444 | Parallel-computing topology optimization for arbitrary design domains using a Raspberry Pi cluster | Dr Zhidong Zhang | 444 | Northwestern Polytechnical University |
| 104 | Parallel Computing for Space-time Topology Optimization | Mr Kai Wu | 138 | TU Delft |
| 107 | Updating of Complete Joint Properties of FE Model for Complex Structures by Comparing Frequency Response Functions with Metrics | Prof Dooho Lee | 57 | Donguei University |
| 80 | Crack identification of composite beam structure based on mechanism and data fusion | Dr Liangliang Yang | 170 | Dalian University of Technology |
| | | | | |

Parallel Session 2 **Mon 5th June 2023** **11:20-13:00**
Topology Opt: MEMS/ Nano-Structures 1

Chair: Prof Pierre Duysinx **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|--|--------------------------------------|-----|---------------------------------|
| 336 | Topology optimization of electrical conduction in busbar systems | Mr Robert Dienemann | 344 | Altair Engineering |
| 255 | Internal Contact in Topology Optimization with the Third Medium Contact Method | Mr Andreas Frederiksen | 260 | DTU |
| 22 | Topology optimization of thermo-optical phase shifters | Mr Beñat Martinez De Aguirre Jokisch | 49 | Technical University of Denmark |
| 438 | Discrete Variable Topology Optimization of Vibrating Structures and Phononic Crystals with High Forbidden Frequency Band Constraints | Dr. Yuan Liang | 152 | Dalian University of Technology |
| 412 | Topology Optimization of Superhydrophobic Surfaces to Delay Spatially Developing Laminar–Turbulent Transition | Mr Harrison Nobis | 464 | Kth |
| | | | | |

Parallel Session 2 **Mon 5th June 2023** **11:20-13:00**
MDO: Applications 1

Chair: Dr Matthijs Langelaar **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|--|---------------------------------|-----|--------------------------------|
| 171 | Optimizing component solution spaces for arbitrary performance functions | Mr Eduardo Rodrigues Della Noce | 97 | Technical University of Munich |
| 166 | Multidisciplinary design optimization of turbine blades using reduced order model (ROM) | Mr Yufan Fang | 165 | Beihang University |
| 181 | A Multidisciplinary Optimization Approach for Resolving the Vicious Cycle of Morphology and Control of Robots | Mr Akhil Sathuluri | 239 | Technical University of Munich |
| 378 | Latent Variable Constrained Bayesian Optimization for Complex Mixed Variable Design | Mr Vispi Karkaria | 394 | Northwestern University |
| 548 | Toward Co-Optimized Transmission & Distribution Electric Grid Planning through Multidisciplinary Design, Analysis, and Optimization (MDAO) | Bryan Palmintier | 540 | NREL |
| | | | | |

Parallel Session 2 **Mon 5th June 2023** **11:20-13:00**
Structural Optimization: Applications 1

Chair: Prof Sung-Kie Youn **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------|-----|--|
| 7 | Density-based topology optimization of structural components considering thermo-mechanical loading and temperature-dependent material properties | Mr Ticho Ooms | 70 | Ghent University |
| 388 | Topology Optimization Driven Inverse Design for Buckling-guided Assembly 3D Structures | Mr Xiaoyu Zhuang | 413 | Dalian University of Technology |
| 165 | Application of Deep Neural Networks with Explainable Attention Mechanisms to Airfoil Aerodynamics | Mr Sunghyun Kim | 163 | Korea Institute of Industrial Technology |
| 90 | Multi-Material and Multi-Joint Topology Optimization | Prof Il Yong Kim | 182 | Queen's University |
| 233 | Actuator Placement Optimization to minimize the quadratic performance index for space truss structure | Mr Zuoyuan Wu | 309 | Beihang University |
| | | | | |

Parallel Session 3 **Mon 5th June 2023** **14:10-15:50**
Topology Opt: Structural Eng. 1

Chair: Prof Renjing Gao **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|--|-------------------------|-----|---------------------------------|
| 330 | A boundary strip indicator function for material distribution-based topology optimization | Mr Mario Setta | 200 | Karlstad University |
| 196 | Shape and topology optimization of the regions supporting boundary conditions | Mr Carlos BRITO PACHECO | 203 | Universite Grenoble Alpes |
| 243 | Topology optimization of phononic crystal considering destructive interference for elastic wave attenuation. | Ms Tam Yee Ha | 256 | Hanyang University |
| 381 | Machine-learning assisted topology optimization for architectural design with artistic flavor | Prof Weisheng Zhang | 408 | Dalian University of Technology |
| 250 | Applications of Texture Synthesis for Topology Optimization | Mr Yuya Kozuka | 237 | Kyoto University |
| | | | | |

Parallel Session 3 **Mon 5th June 2023** **14:10-15:50**
Topology Opt: Multiscale/Multiphysics 1

Chair: Prof Jie Wang **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|-------------------|-----|-------------------------|
| 376 | Multi-scale Topology Optimization of Reluctance Synchronous Motor considering Multifunctional Materials | Mr Doyun Jeong | 329 | Hanyang Univ. |
| 17 | A Machine Learning Approach to Metastructure Design | Prof Ahmad Najafi | 5 | Drexel University |
| 205 | A Simplified Approach to Perform Topology Optimization of Fluid-Structure Interaction Problems Considering Vortex-Induced Vibration | Mr Lucas Siqueira | 205 | University of São Paulo |
| 216 | Topology optimization of EAP ensuring continuous electrodes by connectivity constraints | Mr Daniel Hård | 219 | Lund University |
| 242 | Two-phase fluid simulation and layout optimization | Prof Gil Ho Yoon | 333 | Hanyang University |
| | | | | |

Parallel Session 3 **Mon 5th June 2023** **14:10-15:50**
Topology Opt: Additive Manufacture 2

Chair: Dr Fabian Wein **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|---|------------------------|-----|---------------------------------------|
| 377 | Topology Optimization for Dynamically Responsive Emergent Architected Material Systems (DREAMS) | Prof H Alicia Kim | 4 | University of California San Diego |
| 125 | MULTI-MATERIAL TOPOLOGY OPTIMIZATION OF STRUCTURES FOR IMPROVED MECHANICAL PERFORMANCE | Mr Fábio Conde | 223 | Nova School Of Science And Technology |
| 119 | A basic idea of fictitious physical model approach for geometrical constraints in shape and topology optimization | Prof Takayuki Yamada | 216 | The University of Tokyo |
| 368 | Optimal internal cooling using large-scale 3D multiphysics topology optimization with voxelization | Mr Jonas Lundgren | 51 | Linköping University |
| 33 | Shell-infill design with discrete variables by the sequential element rejection and admission method | Dr Alain Garaigordobil | 108 | University of The Basque Country |
| | | | | |

Parallel Session 3 **Mon 5th June 2023** **14:10-15:50**
Shape Optimization 1

Chair: Dr Andreas Neofytou **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------------|-----|--|
| 199 | Yet another parameter-free shape optimization method | Prof Daniel Tortorelli | 296 | Lawrence Livermore National Laboratory |
| 293 | Structural Optimization using an Updated Lagrangian Approach | Prof Niels Aage | 230 | Technical University of Denmark |
| 12 | Parameter-free Shape Optimization with Adaptive Mesh Refinement | Dr Kenneth Swartz | 26 | Lawrence Livermore National Laboratory |
| 170 | Length-Scale Constrained Density-based Shape Optimization Using Tangent Point Energies | Dr Ronald Bartz | 50 | Volkswagen AG |
| 8 | On the optimal single key connection | Prof Niels L. Pedersen | 52 | Technical University of Denmark |
| | | | | |

Parallel Session 3 **Mon 5th June 2023** **14:10-15:50**
Uncertainty/Robustness/Reliability 1

Chair: Prof Josephine Carstensen **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|---|-------------------------|-----|---|
| 18 | Multi-fidelity Cost-aware Bayesian Optimization | Dr Ramin Bostanabad | 40 | University of California Irvine |
| 94 | An efficient and non-intrusive approach for robust design optimization with the first-order second-moment method | Mr Jan Christoph Krüger | 41 | Hamburg University of Technology (TUHH) |
| 49 | Entropy-regularized Wasserstein distributionally robust shape and topology optimization | Dr Charles Dapogny | 123 | CNRS & Laboratoire Jean Kuntzmann |
| 74 | Stochastic dynamic analysis of composite plate structure under random acoustic excitation based on DPIM | Mr Mingxuan Fang | 160 | Dalian University of Technology |
| 394 | A unified framework via direct probability integral method for uncertainty propagation and reliability analysis of hybrid systems with aleatory and epistemic uncertainty | Dr JIARAN LIU | 74 | Dalian University of Technology |
| | | | | |

Parallel Session 3 **Mon 5th June 2023** **14:10-15:50**
Smart Structures and Materials 1

Chair: Dr Weiming Wang **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|--|-------------------------|-----|--|
| 424 | Design and Analysis of an Adaptive Support Structure for an Aircraft Flexible Trailing Edge | Prof Fengfeng (Jeff) Xi | 480 | Toronto Metropolitan University |
| 447 | Topology optimization of flexures, compliant mechanisms and shape-morphing structures with multiple degrees of freedom | Dr Stijn Koppen | 459 | TU Delft |
| 514 | Model-based Optimization of a compliant zero-force mechanism derived from two bistable mechanisms | Mr Tinghao Liu | 421 | University College Cork |
| 311 | Optimization and experimental verification of actuator control for vibration suppression of space truss structures | Mr Keming Liu | 346 | Beihang University |
| 157 | Unit-cell design of electromagnetic wave absorbing sandwich core using topology optimization | Mr Dohun Lee | 266 | Gwangju Institute of Science And Technology (GIST) |
| | | | | |

Parallel Session 3 **Mon 5th June 2023** **14:10-15:50**
Optimisation: General Applications 1

Chair: Prof Xueguan Song **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------|-----|--|
| 482 | LP/MILP relaxations for the problem of optimal operation of natural gas flow networks | Dr Shriram Srinivasan | 517 | Los Alamos National Laboratory |
| 167 | Multiscale Topology Optimization of Spatially-varying Periodic Structures for Heat Flux Manipulation | Mr Yonghwa Ji | 86 | Gwangju Institute of Science And Technology (GIST) |
| | | | | |
| 207 | Topology optimization of a rotating electric machine by the topological derivative | Mr Nepomuk Krenn | 288 | RICAM Linz, Austrian Academy Of Sciences |
| 52 | Simultaneous design of the shape and movement of actively moving soft bodies with topology optimization | Dr Changyoung Yuhn | 17 | Toyota Central R&D Labs., Inc. |
| | | | | |

Parallel Session 4 **Mon 5th June 2023** **16:20-18:00**
Structural Optimization: Applications 2

Chair: Prof Wei Chen **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|---|--------------------|-----|------------------------|
| 262 | Structural optimization for free-form reticulated shell structure considering structural performance and regularization of node connection patterns | Dr Toshiaki Kimura | 345 | Nagoya City University |
| 320 | A complex structural topology optimization system based on the finite element software MSC.Patran / Nastran | Dr Jiayi Fu | 380 | Beihang University |
| 295 | Towards an automatized process for ready-to-cast topology optimized designs | Dr Emmanuel Tromme | 118 | Toyota Motor Europe |
| 91 | Optimal design of reticulated shells accounting for strength, local buckling and overhang angles | Matteo Bruggi | 143 | Politecnico Di Milano |
| | | | | |
| | | | | |

Parallel Session 4 **Mon 5th June 2023** **16:20-18:00**
Data-driven methods 1

Chair: Dr Alberto Donoso **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|--|----------------------------|-----|---|
| 493 | Application of data-driven topology design to optimal design of turbulent flow distributors | Ryo Tsumoto | 536 | Osaka University |
| 237 | Optimization of process parameters using multi-fidelity Gaussian process under different operating conditions in laser powder bed fusion | Mr Byeong Uk Song | 325 | Korea Advanced Institute of Science and Technology(KAIST) |
| 302 | A learning-driven Scaled Boundary Finite Element Method for flaw detection | Mr PUGAZHENTHI THANANJAYAN | 374 | Indian Institute of Technology Madras |
| 453 | A structural genome database (SGD) based on deep learning for design of microstructures | Mr Wenyu Hao | 484 | Ningbo Institute of Dalian University of Technology |
| | | | | |
| | | | | |

Parallel Session 4 **Mon 5th June 2023** **16:20-18:00**
Approx. & Surrogates / Metamodels: Aerospace

Chair: Prof Michael Stingl **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|--|--------------------|-----|-----------------------------------|
| 260 | A novel surrogate-based design optimization approach for industrial use | Dr Dong-Hoon Choi | 265 | PIDOTECH Inc. |
| 120 | Improving metamodels efficiency for MDO: multi-fidelity sampling and deep-learning ROM | Dr Alberto Clarich | 67 | ESTECO SpA |
| 361 | Surrogate models for thermal optimization of an electro-hydrostatic actuator | Mr Simon Knecht | 403 | Karlsruhe Institute of Technology |
| 285 | Surrogate model rebuilding and reuse for large-scale industrial optimization problems | Ms Olivia Jelks | 361 | Queen Mary University of London |
| | | | | |
| | | | | |

Parallel Session 4 **Mon 5th June 2023** **16:20-18:00**
Evolutionary & Heuristic Optimisation/ Digital Twin

Chair: Dr Stijn Koppen **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|--|--------------------|-----|--|
| 345 | A Nonparametric Niching Technique using iSOM for Multimodal Optimization | Mr Mahesh Shankar | 395 | Indian Institute of Technology Madras |
| 154 | High Dimensional Constrained Bayesian Optimization of Compressor Blades Assisted by Principal Component Analysis | Ms Lisa Pretsch | 30 | Technical University of Munich |
| 509 | Time Efficiency Optimization for Unsteady CFD Analysis of Propeller's Noise using Genetic Algorithm Method | Mr Nadhie Juliawan | 458 | Konkuk University |
| 359 | Digital Twin of Rotating Machines for Proactive Maintenance of Plant Facilities | Mr Dongmin Lee | 354 | Gwangju Institute of Science And Technology (GIST) |
| | | | | |
| | | | | |

Parallel Session 4 **Mon 5th June 2023** **16:20-18:00**
Novel Methods for Modelling, Simulation, and Design 1

Chair: Prof Julian Norato **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------------|-----|---|
| 266 | A Two-Step Approach to Computational Design of 4D Printed Shape Morphing Structures | Mr Andreas Walker | 59 | ETH Zürich |
| 271 | A computationally efficient model for the junction stiffness in optimizing heterogeneous lattice structures | Mr Gaurav Deodhare | 351 | Indian Institute of Science |
| 140 | Structural optimization and laser path optimization to reduce residual deformation due to residual stress stacking in metal additive manufacturing | Prof Akihiro Takezawa | 125 | Waseda University |
| 483 | Wrinkling prediction of membranes via bimodulus thermoelasticity | Mr Xiaoqiang Ren | 475 | Ningbo Institute of Dalian University of Technology |
| | | | | |
| | | | | |

Parallel Session 4 **Mon 5th June 2023** **16:20-18:00**
Topology Opt: Composites

Chair: Prof Zeng Meng **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------------|-----|---|
| 366 | An approach for a computational generation of optimized rib designs for long fiber reinforced thermoplast structures | Mr Patrick Haberkern | 238 | Karlsruhe Institute of Technology (KIT) |
| 528 | Nonlinear topology optimization on ESLM under dynamic plastic deformation | Prof Yongxin Li | 443 | Yanshan University |
| 291 | Correct material interface modelling in DMO-based multi-material topology optimization | Mr Joran Van Der Zwet | 370 | TU Delft |
| 106 | Microstructural topology optimization of viscoelastic composite with tunable relaxation moduli | Prof Kyeongsoo Yun | 130 | Gangneung-wonju National University |
| | | | | |
| | | | | |

Parallel Session 4 **Mon 5th June 2023** **16:20-18:00**
Optimisation: Elasticity Applications

Chair: Prof Mattias Schevenels **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------------|-----|---|
| 59 | Homogenization of surface contact force of hot press molding by variable lattice density optimization | Mr Kazutaka Yanagihara | 137 | AGC Inc. |
| 89 | Multi-material stress constrained topology optimization with precise evolving boundaries using IGA | Mr Majd Kosta | 179 | Technion - Israel Institute Of Technology |
| 77 | Minimization of the total potential energy of elastic bodies subjected to traction and kinematic loads. Designing the optimum distribution of the elastic moduli | Prof Tomasz Lewiński | 168 | Warsaw University of Technology |
| 253 | A structural synthesis scheme for linkage mechanisms by using the topology optimization method with a micropolar elasticity model | Ms Yurika Sayo | 315 | The University of Tokyo |
| | | | | |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
Approx. & Surrogates / Metamodels: Automotive/Struct

Chair: Prof Yoshihiro Kanno **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|---|-------------------|-----|---------------------------------------|
| 476 | ON-THE-FLY MULTIPLE REDUCED-ORDER OPTIMIZATION ALGORITHMS AND ITS APPLICATIONS | Dr Manyu Xiao | 500 | Northwestern Polytechnical University |
| 440 | A New Adaptive Sampling Approach for Surrogate Modelling Based on Voronoi Tessellation and Dynamic Weight Decision Strategy | Prof Weifei Hu | 411 | Zhejiang University |
| 114 | Surrogate-Based Algorithm Selection and Hyperparameter Tuning for Automotive Crashworthiness Optimization | Mr Fu Xing Long | 60 | BMW Group |
| 133 | Bayesian Optimization for High-Dimensional Problems using a Combination of Kriging Surrogate Models | Mr Tanguy Appriou | 233 | Stellantis |
| 498 | IIHS Vehicle Side Impact: Door crossbeam topology optimization using surrogate models enhanced by machine learning techniques emulating engineering expertise | Dr Moritz Frenzel | 541 | Altair GmbH |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
Topology Opt: Structural Eng. 2

Chair: Prof Neils L. Pedersen **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------------|-----|---|
| 505 | A new approach of mechanical cloaking design via the Moving Morphable Voids (MMV) method | Mr Xubing Cheng | 476 | Ningbo Institute of Dalian University of Technology |
| 128 | Topology Optimization using Binary Variables and Geometry Trimming in Stress-Based Designs | Prof Daniel M. De Leon | 208 | Federal University of Rio Grande do Sul - UFRGS |
| 283 | Reliability-based topology optimization for structural volume minimization of structures subjected in the excitation frequency | Prof Zeng Meng | 363 | Hefei University of Technology |
| 455 | A Reliability-based Geometric Projection Formulation for Topology Optimization | Julian Norato | 557 | University of Connecticut |
| 257 | Optimization of distributed vibration control for Truss Structure | Mr Yong Zhong | 162 | Beihang University |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
Topology Opt: Aerospace 2

Chair: Dr Hongyi Xu **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------|-----|---|
| 55 | A Robust Method for Automatic Reconstruction of CAD Models from Topology Optimization Results | Mr Hongyuan Ren | 134 | Tsinghua University |
| 203 | Topology Optimization method based on a modified Fully Stressed Design algorithm for multi-material structures. | Mr Raul Llamas Sandin | 287 | Universidad Europea de Madrid, Universidad de Sevilla |
| 499 | Explicit layout optimization of complex rib-reinforced thin-walled structures based on the Moving Morphable Components (MMC) method | Dr Chang Liu | 454 | Dalian University of Technology |
| 344 | A research software toolbox for topology optimization with multiple element types for solid and thin-walled designs. | Prof Frank Naets | 396 | Ku Leuven |
| 58 | Level set based optimization method for thin-walled structures using shell elements | Mr Hiroki Kobayashi | 24 | Toyota Central R&D Labs. Inc. |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
Structural Optimization: Civil & Structural Eng. 2

Chair: Mr Tim Felle Olsen **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------|-----|--------------------------------------|
| 333 | Shape and size optimization of Eurocode-compliant reinforced-concrete waffle slabs | Mr Tobias Barbier | 119 | KU Leuven |
| 349 | A convex formulation for optimal design of planar elastic membranes using the Föppl's model | Dr Karol Bołbotowski | 300 | Warsaw University of Technology |
| 184 | Design and Optimization of Functionally-graded Triangular Lattice Structures | Mr Junpeng Wang | 33 | Technical University of Munich |
| 515 | Global minimum-weight design of frame structures with polynomial optimization | Dr Marek Tyburec | 465 | Czech Technical University In Prague |
| | | | | |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
Topology Opt: Additive Manufacture 3

Chair: Dr Fengwen Wang

Room: Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------------------------|-----|---|
| 484 | A Novel Regularization Approach for Topology Optimization of Orientation-Driven Discrete Objects | Dr Julia Carroll | 533 | Johns Hopkins University |
| 158 | Multi-material Topology Optimization Considering Dynamic Viscoelastic Properties | Mr Takumi Sugiura | 116 | Nagoya University |
| 405 | Strength-based topology optimization for composite laminates | Dr François-Xavier Irisarri | 447 | ONERA, DMAS, Université Paris Saclay |
| 411 | Efficient spline design via feature-mapping for continuous fiber reinforced structures | Dr Jannis Greifenstein | 450 | Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) |
| 317 | Optimizing Infill Structures for Additive Manufacturing by De-Homogenization | Mr Peter Dørffler Ladegaard Jensen | 360 | Technical University Of Denmark |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
MDO: Applications 2

Chair: Prof Emilio Carlos Nelli Silva **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|--|--------------------|-----|---|
| 527 | Optimal design of frames considering semi-rigid connections | Dr Hazem Madah | 486 | Shamoon College of Engineering (SCE) |
| 35 | A new method for designing piezo transducers with connected two-phase electrode | Dr David Ruiz | 90 | University Of Castilla-la Mancha |
| 98 | Sampling-based RBDO under multidisciplinary conditions | Mr Seonghyeok Yang | 191 | Korea Advanced Institute of Science and Technology(KAIST) |
| 256 | Design Optimization of Wind Assisted Ship Considering Various Sea and Wind Conditions | Dr Cem Guzelbulut | 254 | The University of Tokyo |
| 43 | Metamodel-based product family design optimization considering individual performance and assemblability | Mr Pavel Ereemeev | 76 | KU Leuven |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
Optimisation: General Applications 2

Chair: Prof Bin Niu **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------|-----|---|
| 123 | Simultaneous shape and topology optimization of pneumatic soft robots | Mrs Anna Dalklint | 225 | Lund University |
| 131 | Topology optimization of active structural systems to minimize environmental impact | Dr Yafeng Wang | 235 | Technical University of Denmark |
| 63 | Time series moving morphable components based topology optimization with geometrical nonlinearity | Mr Zonghao Li | 114 | Zhejiang University |
| 337 | Design of a solar air heater using feature-mapping methods | Dr Fabian Wein | 293 | Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) |
| 191 | Parametric topography optimization of multilayer plate heat exchangers | Prof Casper Andreasen | 264 | Technical University of Denmark |
| | | | | |

Parallel Session 5 **Tue 6th June 2023** **09:00-10:40**
Structural Optimization

Chair: Prof Jungi Kato **Room:** West Wing 5

| Pap # | Title | Author | ID | Institution |
|-------|---|------------------|-----|--------------------------------|
| 37 | Designing material properties for metal Additive Manufacturing by controlling cooling time through topology optimization | Dr Can Ayas | 523 | TU Delft |
| 364 | Stability maximisation of locally enhanced lattice structures | Yongpeng He | 181 | University of Bath |
| 474 | A Tribute to Dr. Garret N. Vanderplaats: 50 Plus Years of His Contributions to the Structural Optimization and Multidisciplinary Design Optimization Fields | Juan Pablo Leiva | 499 | Vanderplaats R&D DBA OmniQuest |
| | | | | |
| | | | | |
| | | | | |

Parallel Session 6 **Tue 6th June 2023** **11:20-13:00**
Structural Optimization: Composite/Laminates

Chair: Prof Benedikt Kriegesmann **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|--|--------------------|-----|---------------------------------------|
| 1 | Topology optimization, fiber path optimization and additive manufacturing of CFRP structures | Ms Yanan Xu | 3 | The University of Sydney |
| 375 | Multi-scale Design Optimization of Fiber-reinforced Composite Laminates with Minimum Structural Compliance baed on Adapted Normal Distribution Fiber Optimization Method | Prof Zunyi Duan | 358 | Northwestern Polytechnical University |
| 236 | Topology optimization and prototyping of variable axial composite structures by computational fabrication | Dr Tsuyoshi Nomura | 55 | Toyota Central R&D Labs., Inc. |
| 507 | Retrieval of blended composite laminates via a performance-matching approach applied to the pre-sizing of aerospace structures | Dr Florent Savine | 19 | ONERA |
| 87 | A high-cycle fatigue optimization approach for Discrete Material and Thickness Optimization of Laminated Composites | Prof Erik Lund | 78 | Aalborg University |
| | | | | |

Parallel Session 6

Tue 6th June 2023

11:20-13:00

Structural Optimization: Applications 3

Chair: Dr Kurt Maute

Room: Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------------|-----|---------------------------------|
| 284 | Gradient-based Thickness Optimization of a Wind Turbine Blade Root Part | Mr Sebastian Hermansen | 366 | Aalborg University |
| 339 | Microstructures with extremal stiffness, yield and buckling strength | Prof Ole Sigmund | 392 | Technical University of Denmark |
| 118 | Design Optimization of R-6bar-R Hip Exoskeleton Mechanism | Mr Jongjun Lee | 212 | Seoul National University |
| 201 | Homogenization-Based Topology Optimization of Multiscale Structures to Prevent Buckling and Yielding | Mr Christoffer Christensen | 272 | Technical University of Denmark |
| 212 | Multi-material topology optimization for homologous deformation problem in structural design of large telescope | Dr Hiroaki Kawamura | 184 | Nagoya City University |
| | | | | |

Parallel Session 6

Tue 6th June 2023

11:20-13:00

Topology Opt: Structural Eng. 3

Chair: Prof Ikjin Lee

Room: Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------|-----|--|
| 222 | Topology Optimization of Axisymmetric Structures with Design-Dependent Contact Loading | Prof Kai James | 308 | Georgia Institute of Technology |
| 413 | Pure-displacement formulation for topology optimization with pressure loads | Mr Eduardo Moscatelli | 243 | University of São Paulo |
| 182 | Homologous design with structural topology optimization | Dr Shufei Feng | 286 | Katholieke Universiteit Leuven |
| 533 | An efficient optimization method to determine both cross-section type and topology of frames | Prof Hai Huang | 498 | Beihang University |
| 502 | Multi-Material Topology Optimization of Lightweight Truss Structures considering Strength and Stability Design Criteria | Miss Claudia Almeida | 439 | UNIDEMI, NOVA School of Science and Technology |
| | | | | |

Parallel Session 6 **Tue 6th June 2023** **11:20-13:00**
Shape Optimization 2

Chair: Prof Renato Picelli **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|--|----------------------|-----|---|
| 208 | A novel hydroforming-specific constraint formulation for node-based shape optimization using Vertex Morphing | Mr David Schmölz | 53 | Technical University of Munich |
| 469 | Including self-weight in optimal design of archgrids | Dr Radosław Czubacki | 415 | Warsaw University of Technology |
| 541 | Feature mapping with general polygonal primitives | Dr Yakov Zelickman | 555 | Johns Hopkins University |
| 54 | Design Optimization via the Continuous Stochastic Gradient Method | Prof Michael Stingl | 133 | Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) |
| 249 | Optimization of transient electromagnetic problems using discontinuous Galerkin methods | Dr Fengwen Wang | 339 | Technical University of Denmark |
| | | | | |

Parallel Session 6 **Tue 6th June 2023** **11:20-13:00**
Structural Optimization: Additive Manufacturing

Chair: Prof Matthew Gilbert **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|---|-------------------------|-----|---|
| 261 | Development of a rigid pivot joint for compliant mechanism using minimum thickness constraints | Mr Jun Hwan Kim | 279 | Hanyang University |
| 384 | Structural optimisation of a benchmark artifact assessing the quality of additively manufactured aircraft components | Mr Michael Mauersberger | 20 | Technische Universität Dresden |
| 342 | Layout and geometry optimization of truss-like components fabricated via multi-axis additive manufacturing | Dr Linwei He | 276 | University of Sheffield |
| 202 | Optimization and probabilistic analysis of structures optimized for topology and smoothly varying material orientations | Kai Steltner | 96 | Hamburg University of Technology (TUHH) |
| 464 | A novel multi-material topology optimization method based on level set function of fragment interpolation | Mr Yilin Guo | 478 | Ningbo Institute of Dalian University of Technology |
| | | | | |

Parallel Session 6 **Tue 6th June 2023** **11:20-13:00**
Topology Opt: MEMS/ Nano-Structures 2

Chair: Prof Gil Ho Yoon **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|---|------------------------------|-----|---|
| 382 | Explicit topology optimization for graded lattice flexoelectric nanostructures via ersatz material model | Mr Yao Meng | 406 | Dalian University of Technology |
| | | | | |
| 32 | Topology and Material Optimization of Optical Properties of Particulate Products by Discrete Dipole Approximation and Sequential Global Programming | Mr Nico Nees | 100 | Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) |
| 97 | Simultaneous optimisation of compliant mechanism topology and embedded piezoelectric stack actuator position and size | Mr Breno Vincenzo De Almeida | 192 | University of Campinas |
| 226 | Deep learning based topology optimization method for microstructure design according to mechanical performance | Prof Hongling Ye | 311 | Beijing University of Technology |
| | | | | |

Parallel Session 6 **Tue 6th June 2023** **11:20-13:00**
Topology Opt: Aerospace 3

Chair: Dr Helen Fairclough **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------------------|-----|--|
| 127 | Combined shape and topology optimisation of shell structures using CAD-free parameterisation | Ms Marina Kamper | 81 | Katholieke Universiteit Leuven |
| 310 | Real gas model influence at the topology optimization of turbulent subsonic compressible flow | Dr Luis Fernando Garcia Rodriguez | 381 | University of São Paulo |
| 178 | Continuous and adaptive material distribution in topology optimization using isogeometric PHT-Splines | Mr Philip Luke Karuthedath | 187 | Indian Institute of Technology Roorkee |
| 209 | Size and topology optimization of stiffened shell structures | Dr Peter Dunning | 204 | University of Aberdeen |
| 461 | OpenPisco: an open-source R&D software platform for shape and topology optimization | Dr David Danan | 466 | IRT SystemX |
| | | | | |

Parallel Session 6 **Tue 6th June 2023** **11:20-13:00**
Optimization Algorithms 2

Chair: Prof Shutian Liu **Room:** West Wing 5

| Pap # | Title | Author | ID | Institution |
|-------|---|------------------------|-----|---|
| 175 | MS-RP:A model selection strategy based on the modified R2 Prediction | Mr Jinyang Li | 280 | Hunan University |
| 47 | System Reliability Prediction with Dependent Component Failures and Unknown Limit-State Functions | Prof Xiaoping Du | 105 | Indiana University - Purdue University Indianapolis |
| 188 | Multi-GPU accelerated topology optimization | Prof Matthijs Langeaar | 289 | Delft University Of Technology |
| 434 | Research and application on multi-point approximation method considering second order information | Dr Shuanjun Liu | 488 | Beihang University |
| 426 | Topology optimization on complex surfaces based on the moving morphable components method and computational conformal mapping | Dr Wendong Huo | 485 | Ningbo Institute of Dalian University of Technology |
| | | | | |

Parallel Session 7 **Tue 6th June 2023** **16:20-18:00**
Novel Methods for Modelling, Simulation, and Design 2

Chair: Dr Carl-Johan Thore **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|---|------------------------|-----|----------------------------------|
| 517 | Virtual element method for topology optimization of contact problems | Prof Andrzej Myslinski | 462 | Systems Research Institute |
| 168 | Study the use of computational fluid dynamics for the purpose of process understanding, development, and optimisation in hydrogel mixing towards achieving uniformity | Mr Pádraig Ó Donnchú | 277 | Munster Technological University |
| 357 | Use of numerical layout optimization to model masonry constructions | Prof Matthew Gilbert | 372 | University of Sheffield |
| 151 | Structural Optimization Based on an Algorithmic Design (A Proposal of Algorithm Design Approach) | Prof Kazuyuki Hanahara | 215 | Iwate University |
| 155 | Using Cellular Automata as an Easy Way for the Generation of Topologies of Plane and Spatial Structures under Random Loads | Justyna Miodowska | 576 | Cracow University of Technology |
| | | | | |

Parallel Session 7 **Tue 6th June 2023** **16:20-18:00**
Optimisation Algorithms 3

Chair: Prof Cheol Kim

Room: Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------|-----|-------------------------------------|
| 102 | Bayesian optimization with Gaussian process regression: a multi-fidelity review | Mr Leo Guo | 136 | TU Delft |
| 14 | A Hilbertian projection method for constrained level set-based microstructure optimisation | Mr Zachary Wegert | 69 | Queensland University of Technology |
| 48 | Trust region based moving asymptotes method for topology optimization problems with global and local stress constraints | Mr Xueyan Hu | 21 | Zhejiang University |
| 169 | Smoothing methods for some eigenvalue optimization problems in topology optimization | Mr Akatsuki Nishioka | 189 | The University of Tokyo |
| 159 | Statistical Stack Pressure Estimation in Module Level Using Phenomenological Swelling Model | Mr Hyunhee Choi | 577 | Seoul National University |
| | | | | |

Parallel Session 7 **Tue 6th June 2023** **16:20-18:00**
Sensitivity Analysis Methods and Applications 1

Chair: Prof Daniel M. De Leon **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------------------|-----|---|
| 36 | Topology optimization using a modified discrete adjoint method in structural dynamics | Mr Timo Schmidt | 109 | Hamburg University of Technology (TUHH) |
| 197 | A Novel Sensitivity Analysis Method Using Self-Organizing Maps (SOM) | Mr Deepanshu Yadav | 104 | Indian Institute of Technology Madras |
| 86 | Polynomial-type Extrapolation-Based Sensitivity Reanalysis: Dealing with Computational Challenges in Engineering Design Optimisation | Dr Shahin Jalili Dargalusani | 177 | University of Aberdeen |
| | | | | |
| 30 | On the numerical calculation of topological derivatives for shells considering crash loadcases | Axel Schumacher | 154 | University of Wuppertal |
| | | | | |

Parallel Session 7 **Tue 6th June 2023** **16:20-18:00**
Structural Optimization: Applications 4

Chair: Prof Xiaojia Shelly Zhang **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------------------|-----|---------------------------------|
| 289 | Optimal Casing Thickness Design of Li-ion Battery in Electric Vehicle | Mr Seyed Sajad Mirjavadi | 369 | University of Sydney |
| 25 | Optimizing interconnected features using moving morphable components | Mr Cecil Armstrong | 599 | Queens University Belfast |
| 194 | Dehomogenization methods for flow-driven topology optimization and a case study for hydrogen fuel cell flow channel design | Yuqing Zhou | 292 | Toyota |
| 519 | Topology Optimization Method of bonding domain distribution between skin and skeleton of sandwiched-flexible-sheet for restraining bump | Prof Renjing Gao | 425 | Dalian University of Technology |
| 287 | Structural Analysis and Optimization of Micro satellite APSCO SSS-1 | Miss Huiyun Pan Shenyan Chen | 368 | Beihang University |
| | | | | |

Parallel Session 7 **Tue 6th June 2023** **16:20-18:00**
Data-driven methods 2

Chair: Prof Martin Berggren **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|--|-------------------|-----|---------------------------------------|
| 75 | Structural Performance Dynamic Prediction with Physics-Informed Hybrid Modeling Method | Dr Xiwang He | 166 | Dalian University of Technology |
| 436 | Multifidelity Topology Design on the Probabilistic Principal Component Analysis | Prof Kentaro Yaji | 434 | Osaka Univeristy |
| 343 | Online Fault Detection in Machine Parts Using Motif Discovery and Dynamic Time Warping | Mr Pranjul Dubey | 391 | Indian Institute of Technology Madras |
| 522 | Data-driven topology optimization of heterogeneous cellular structures | Prof Bin Niu | 543 | Dalian University of Technology |
| 452 | Deep Learning Methods for Multi-fidelity Missing Data Completion | Zongqi Liu | 457 | Dalian University of Technology |
| | | | | |

Parallel Session 7 **Tue 6th June 2023** **16:20-18:00**
Topology Opt: Thermal & Fluid Eng. 2

Chair: Dr Ming Zhou **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------|-----|---|
| 341 | Material distribution topology optimization for boundary dominated problems | Prof Eddie Wadbro | 359 | Karlstad University |
| 76 | Topology optimization of electromagnetic metasurfaces in microwave region | Prof Yongbo Deng | 62 | Chinese Academy of Sciences |
| 338 | Topology Optimization of the Downcomers of a Multi-Staged Fluidized Bed System | Dr Diego Silva Prado | 244 | Polytechnic School of The University Of São Paulo |
| 313 | Combining Density and Level Set Methods for Flow Topology Optimization | Dr Kurt Maute | 382 | University Of Colorado Boulder |
| 267 | Topology optimization for the design of temperature rise reduction structures under unsteady-state thermal-fluid field. | Mr Keisuke Takaara | 322 | Nagoya University |
| | | | | |

Parallel Session 7 **Tue 6th June 2023** **16:20-18:00**
Optimisation: General Applications 3

Chair: Qing Li **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------|-----|--------------------------------------|
| 220 | Simultaneous Optimization of Structure and Closed-Loop Controller for Locomoting Soft Bodies under Environmental Uncertainty | Dr Yuki Sato | 94 | Toyota Central R&D Labs., Inc. |
| 542 | Modular-topology optimization for design and manufacturing of modular compliant mechanisms | Dr. Jan Novák | 556 | Czech Technical University in Prague |
| 117 | Mechanism Topology Optimization of Self-Aligning Knee Exoskeletons | Ms Jeonghan Yu | 164 | Seoul National University |
| 238 | Design of Bio-inspired Material with High Energy Absorption Capability Using Bayesian Optimization and Voronoi Tessellation | Mr Youngtaek Oh | 226 | UNIST |
| 495 | Engineering starts with words (Method to obtain trade-off analysis between words) | Sonosuke Harada | 449 | Kagawa University |
| | | | | |

Parallel Session 8

Wed 7th June 2023

09:00-10:40

Approx. & Surrogates / Metamodels: General Applic.

Chair: Dr Claus B.W. Pedersen

Room: Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------|-----|---|
| 144 | Active learning Gaussian Process model under surrogate model uncertainty for efficient variable screening and modelling | Mr Minjik Kim | 255 | Korea Advanced Institute of Science and Technology(KAIST) |
| 423 | An Ensemble-Adaptive Tree-based Chain Framework for Multi-Target Regression Problems | Dr Hechen Wei | 479 | Hunan University |
| 363 | Efficient Multi-Objective Optimization of Additively Manufactured Sandwich Structures with Cellular Lattice Cores | Mr Konstantin Kappe | 342 | Fraunhofer EMI |
| 278 | Multilayer 2D equivalent method of 3D conjugate heat transfer analysis and its application in active phased array antenna | Dr Sihao Qian | 356 | Xidian University |
| 432 | A Pointwise-Optimal Ensemble of Surrogate Models | Mr Shuai Zhang | 535 | Dalian University of Technology |
| | | | | |

Parallel Session 8 **Wed 7th June 2023** **09:00-10:40**
Uncertainty/Robustness/Reliability 2

Chair: Prof Xiaoping Du **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------------|-----|--|
| 60 | Robust design optimization of structures with multimodal responses using Taylor expansions | Prof Benedikt Kriegesmann | 16 | Hamburg University of Technology (TUHH) |
| 6 | Semi-Probabilistic Codesign Framework for Tolerance bound Optimization complying with Aeronautical Static Strength Requirements | Mr Gabriele Capasso | 39 | Airbus Operations SAS |
| 185 | Product family design for product variants exposed to an uncertain environment | Mrs Nicola Barthelmes | 34 | Technical University Munich |
| 64 | Dynamic-reliability-based topology optimization of braced frame structures under near-fault ground motions | Dr Luxin Li | 146 | Dalian University of Technology |
| 370 | Random Matrix Theory for Efficient Robust Topology Optimization | Mr Linxi Li | 214 | University of Toronto Institute for Aerospace Studies |
| | | | | |

Parallel Session 8 **Wed 7th June 2023** **09:00-10:40**
MDO: Aerospace applications 2

Chair: Prof Kyeongsoo Yun **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|--|-------------------------|-----|--|
| 137 | Topology optimization for 3d printed hybrid solid rocket motor engine grain design methodology for high mechanical reliance and thrust to weight ratio | Dr Musaddiq Al Ali | 107 | Toyota Technological Institute |
| 210 | Continuous fibre composite optimisation with buckling and additive manufacturing constraints | Mr Yi-rong Luo | 218 | Imperial College London |
| 23 | Mixed variable structural optimisation applied to a double-double composite panel | Mr Alejandro Garcia Pis | 84 | Airbus Operations SAS, Université Paul Sabatier, ICA |
| 50 | Guided Optimization: A Nested Cost Optimization Technique for Existing Product Family Designs | Dr Emin Oguz Inci | 124 | KU Leuven |
| | | | | |
| | | | | |

Parallel Session 8 **Wed 7th June 2023** **09:00-10:40**
Topology Opt: Automotive Applications 2

Chair: Prof Yoojeong Noh **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------|-----|--|
| 21 | Shape- and Topology Optimization of Fluid Film Thrust Bearings | Dr Kristian Jensen | 95 | COMSOL |
| 27 | Development of a new heuristic supporting the Graph and Heuristic based Topology optimization with Reinforcement Learning | Mr Jens Trilling | 102 | University of Wuppertal |
| 70 | Shape Optimization of Topology Optimization Concepts by using Implicit-based Geometry and Ensembles of Metamodels | Prof Niclas Strömberg | 150 | Örebro University |
| 172 | LEOPARD Topology Optimization and CAD Export for Industrial Applications | Dr Thilo Franke | 597 | Volkswagen AG |
| 79 | Topology optimization for vehicle routing problems | Mr Sungyong Kim | 579 | Korea Advanced Institute of Science and Technology (KAIST) |
| | | | | |

Parallel Session 8 **Wed 7th June 2023** **09:00-10:40**
Topology Opt: Additive Manufacture 4

Chair: Prof Daniel Tortorelli **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|--|----------------------|-----|--|
| 516 | Sensitivity clustering-based concurrent topology and microstructure optimization method for metamaterial thermal actuators | Prof Shutian Liu | 423 | Dalian University of Technology |
| 160 | Manufacturing Constraints Based on Local Design Responses | Mr Thorsten Mertins | 274 | Dassault Systemes |
| 34 | A continuous model for connectivity constraints in topology optimization | Dr Alberto Donoso | 87 | ETSII-CR Universidad de Castilla-La Mancha |
| 78 | Design of lattice structures for bone implants considering fatigue performance using PolyStress | Miss Katherine Zheng | 151 | Deakin University |
| 296 | Optimization of Continuous Fiber Explicit Layout for 3D-printing FRP based on Level Set Method | Mr Takahito Moribe | 117 | Nagoya University |
| | | | | |

Parallel Session 8 **Wed 7th June 2023** **09:00-10:40**
Shape Optimization 3

Chair: Prof Bin Niu **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------------|-----|--|
| 292 | The transition of effective frequency by Fourier order in FFT-based optimization of ventilation and sound-absorbing materials | Mr Keigo Kajitani | 158 | Shimane University |
| 258 | Extending the Graphic Statics Method to the Design of Compliant Mechanisms | Mr Deepak Kumar Gupta | 331 | Indian Institute of Science |
| 57 | Richtmyer-Meshkov instability jet growth mitigation using design optimization methods | Dr Dane Sterbentz | 139 | Lawrence Livermore National Laboratory |
| 244 | On the global optimum for heat conduction | Dr Yang Liu | 328 | Tsinghua University |
| 326 | Comparison of Approximation-Assisted and Adjoint Optimization Methods to Design Shape Optimized Air-to-Refrigerant Heat Exchangers | Dr Vikrant Aute | 387 | University of Maryland |
| | | | | |

Parallel Session 8 **Wed 7th June 2023** **09:00-10:40**
Optimisation of Slender & Thin Walled Structures

Chair: Prof Tae Hee Lee **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|--|--|-----|---------------------------------------|
| 180 | CFD-CSM-based aerostructural optimization of composite wind turbine rotors with buckling constraints | Marco Mangano | 141 | University of Michigan |
| 303 | Simultaneous Optimisation of Shape and Thickness of Shell Structures | Mr Erik A. Träff | 375 | Technical University of Denmark |
| 213 | Challenges in topology optimization for buckling and postbuckling | Prof H Alicia Kim, on behalf of Mr Sheng Chu | 304 | University of California San Diego |
| 83 | Efficient use of reanalysis-based reduced order models in buckling constrained topology optimization | Mr Vilmer Dahlberg | 172 | Lund University |
| 450 | Thin-walled structures with lattices and stiffeners designed by topology optimization and manufactured by additive manufacturing | Mr Longlong Song | 588 | Northwestern Polytechnical University |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Uncertainty/Robustness/Reliability 3

Chair: Prof Dooho Lee

Room: Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------|-----|---|
| 115 | Reliability-based structural optimization under uncertainty in expected value of external load | Prof Yoshihiro Kanno | 18 | The University of Tokyo |
| 39 | Uncertainty Quantification of Nonlinear Laminated Composite Plates with Multiple Stochastic Sources based on Direct Probability Integral Method | Dr Hui Huo | 113 | Dalian University of Technology |
| 526 | Stochastic Design Optimization of Uncertain Linear Systems Subjected to Random Vibrations | Prof Samy Missoum | 246 | University of Arizona |
| 544 | Fuzzy Optimum Design of Cable Stayed Bridges | Prof Luis Simoes | 637 | University Of Coimbra, Portugal |
| 103 | Computational framework for fatigue constrained topology optimization | Prof Janos Logo | 194 | Budapest University of Technology And Economics |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Smart Structures and Materials 2

Chair: Mr Fabian Guhr **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------------|-----|--|
| 221 | Multi-physics topology optimization for programmable magneto-active materials | Prof Xiaojia Shelly Zhang | 307 | University of Illinois at Urbana-Champaign |
| 463 | Machine learning-assisted optimal design of topological insulators | Dr Zongliang Du | 504 | Dalian University of Technology |
| 340 | 3D Piezoelectric Structures Based Topology Optimization | Dr Abbas Homayouni Amlashi | 635 | FEMTO-ST Institute, Université Bourgogne Franche |
| 232 | Differentiable inverse design of magnetically actuated kirigami for shape morphing | Prof Wei Chen | 589 | Northwestern University |
| 19 | Design Mixed-Category Microstructures by Deep Generative Modeling and Curvatual Functionals | Dr Hongyi Xu | 91 | University of Connecticut |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Topology Opt: Multiscale/Multiphysics 2

Chair: Prof Takayuki Yamada **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|---|-------------------------|-----|--|
| 189 | De-homogenisation using phasor noise | Rebekka Vaarum Woldseth | 290 | Technical University Of Denmark |
| 304 | Basic study on topology optimization of piezoelectric structures with tunable acoustic properties | Mr Nari Nakayama | 341 | Kyoto University |
| 437 | Sequential conservative integer programming method for multi-constrained discrete-continuous variable topology optimization | Dr Kai Sun | 493 | Dalian University of Technology |
| 487 | Investigating Energy-Based Objectives in Thermoelastic Topology Optimization considering Finite strain | Prof Hayoung Chung | 531 | Ulsan National Institute of Science and Technology |
| 225 | Topology optimization for linear oscillatory actuator design with infill structure | Prof Sunghoon Lim | 127 | Kyoto University |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Topology Opt: Structural Eng. 4

Chair: Prof Markus Rumpfkeil **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|---|--------------------|-----|---|
| 251 | A Topology Optimization Method Considering Connectivity Restriction based on Fictitious Physics Approach | Dr Kozo Furuta | 186 | Kyoto University |
| 491 | A Problem Independent Machine Learning (PIML)-based approach for large-scale structural analysis and topology optimization of linear elastic structures | Mr Mengcheng Huang | 502 | Ningbo Institute of Dalian University of Technology |
| 513 | A discrete material optimization approach for oriented finite periodic structures | Prof Qing Li | 549 | The University of Sydney |
| 234 | Topology optimization reducing the dynamic instability of squeal noise | Ms Sol Ji Han | 312 | Hanyang University |
| 16 | Graph and Heuristic Based Topology Optimization for crash-loaded profiles made of joined sheet metals | Mr Simon Link | 31 | University of Wuppertal |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Topology Opt: Additive Manufacture 5

Chair: Dr Lise Noel **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|--|---------------------|-----|---|
| 92 | Single and Multi-Component Topology Optimization for Additive Manufacturing | Mr Luke Crispo | 183 | Queen's University |
| 290 | Ensuring jet access in topology optimization for cleanable parts | Mr Reinier Giele | 301 | TU Delft |
| 228 | Physics-informed convolutional neural network to mitigate structural disconnection in deep learning-based topology optimization. | Mr Geonwoo Lee | 321 | Korea Advanced Institute of Science and Technology(KAIST) |
| 467 | Tailoring Topology Optimization to Anisotropic Extrusion-based Additive Manufacturing Processes | Hajin Kim-Tackowiak | 496 | Massachusetts Institute of Technology |
| 156 | Computational design of metamaterials with self contact | Mr Filip Sjövall | 58 | Lund University |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Structural Optimization: Lattice Structures

Chair: Dr Kristian Jensen **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|---|--------------------|-----|---|
| 121 | Multi-scale Topology Optimisation using Pareto-optimal lattice structures | Mr Tom De Weer | 222 | KU Leuven |
| 56 | Multi-scale Analysis and Modeling Method of Lattice Filled Curved Plate | Dr Chenguang Zhang | 132 | Dalian University of Technology |
| 510 | Stress constrained optimisation of lattice structures | Mr Nassim Kesmia | 525 | Universite Gustave Eiffel |
| 494 | PIML-enhanced 3D Graded Lattice Structures Optimization via Moving Morphable Components approach | Mr Wu Xu | 472 | Ningbo Institute of Dalian University of Technology |
| 416 | Two-Scale Buckling Optimization of 3D Graded Lattice Structures using Numerical Homogenization based on Beam Models | Mr Daniel Hübner | 463 | Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Optimisation: General Applications 4

Chair: Prof Jin Woo Lee **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------|-----|---------------------------|
| 319 | Design exploration of layered composite shells | Dr Jan Liedmann | 383 | TU Dortmund |
| 245 | Reduced-order methods for large-scale dynamic problems in topology optimization | Mr Yongxin Qu | 335 | Shangdong University |
| 414 | Topology optimization of dynamic flexoelectric structures by isogeometric analysis | Dr Xing Chen | 442 | Universite Gustave Eiffel |
| 186 | Multi-Physics Shape Optimization of an Electric Engine | TBA | 44 | Dassault Systemes |
| 325 | A fully distributed framework for topology optimization of multiphysics systems using local mesh refinement | Dr Hao Li | 253 | Kyoto University |
| | | | | |

Parallel Session 9 **Thu 8th June 2023** **09:00-10:40**
Optimization Algorithms 4

Chair: Prof Ole Sigmund **Room:** West Wing 5

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------------|-----|---------------------------------|
| 451 | GAN-CS: Generative Adversarial Networks for Computational Simulation Based on Limited Training Data | Ms Lixue Liu | 510 | Dalian University of Technology |
| 471 | Unraveling neurally-reparametrized topology optimization | Mr M S Suryanarayanan | 433 | TU Delft |
| 472 | NSGAI-driven Shape Optimization in Geant4: A New Path to Enhanced Light Output with Scintillation Crystals | Mr. Guillermo Reales | 448 | TU Delft |
| | | | | |
| | | | 0 | |

Parallel Session 10 **Thu 8th June 2023** **11:20-13:00**
Structural Optimization: Applications 5

Chair: Dr Kenneth Swartz **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------|-----|-----------------------------------|
| 532 | Optimizing effective fracture toughness of heterogeneous materials under mode-I loading using Bayesian methods | Sukhminder Singh | 269 | FAU Erlangen-Nürnberg |
| 143 | Concurrent multiscale topology optimization of coated structures infilled with layer-wise lattice microstructures for dynamic structural performance | Mr Tiannan Hu | 167 | Kyoto University |
| 524 | Approach to validate an initial simulation model for topology optimization of injection molded short-fibre reinforced thermoplastic (frp)-metal-hybrids | Mr Sven Lenhardt | 83 | Karlsruhe Institute of Technology |
| 479 | Topology optimization of fluidic problems using internal interface normal zero-velocity constraint | Ms Zhiqi Wang | 482 | Chinese Academy of Sciences |
| 263 | Vehicle Frame Optimization based on Higher-order Beam Theory | Prof. Gang-Won Jang | 310 | Sejong University |
| | | | | |

Parallel Session 10 **Thu 8th June 2023** **11:20-13:00**
MDO: Multi Scale/Multi Physics problems

Chair: Prof Niclas Strömberg **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|----------------------|-----|---|
| 176 | Multi-disciplinary design of robot-like systems using solution spaces | Ms Klara Ziegler | 229 | Technical University of Munich |
| 308 | A Sequential Global Programming Approach for Homogenization-based Multiphysics Optimization Problems Applied to Biot Porous Media | Ms Bich Ngoc Vu | 295 | Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) |
| 346 | A scalable problem to benchmark robust multidisciplinary design optimization techniques | Mr Amine Aziz Alaoui | 376 | IRT Saint Exupery |
| 400 | Electrochemical Modelling and Optimisation of All Solid-State Battery Parameters Using Finite Element Method | Dr Vibhuti Pandey | 437 | University of California San Diego |
| 112 | Structural topology optimization of the designed frequency response function using multi-objective dynamic compliance | Mr Seongwon Bae | 72 | Kyoto University |
| | | | | |

Parallel Session 10 **Thu 8th June 2023** **11:20-13:00**
Sensitivity Analysis Methods and Applications 2

Chair: Prof Oded Amir **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|---|---------------------------|-----|---|
| 286 | PCA of shape sensitivity for dynamic structures | Seyed Ali Ghasemi | 267 | TU Dortmund |
| 161 | Geometric and material sensitivity analysis for regularised ductile damaging materials. | Mr Fabian Guhr | 275 | TU Dortmund |
| 395 | Semi-analytical Gradient-based Optimization of Exact CAD Models using Intermediate Field Representations | Dr Martin Pierre Schmidt | 422 | Lab. of Mathematics INSA & Dassault Systemes Research |
| 11 | Fatigue Optimization using Semi-analytic Adjoint Sensitivities | Dr Claus B.W. Pedersen | 45 | Dassault Systemes \ SIMULIA |
| 13 | Finite variation sensitivity analysis: methods to perform accurate linearizations in discrete topology optimization methods | Mr Daniel Candeloro Cunha | 11 | University of Campinas - Unicamp |
| | | | | |

Parallel Session 10 **Thu 8th June 2023** **11:20-13:00**
Novel Methods for Modelling, Simulation, and Design 3

Chair: Dr Mathias Schmidt **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------------|-----|---------------------------------------|
| 26 | Reparametrizing boundaries of Bezier-defined features from the moving morphable components framework | Dr Thomas Shannon | 99 | Queen's University Belfast |
| 235 | Development of the pipe density filter for fluid topology optimization | Mr Young Hun Choi | 273 | Hanyang University |
| 322 | A novel multi-objective optimization formulation for strain variance optimization in isothermal forging | Mr Kannan Sekar | 378 | Indian Institute of Technology Madras |
| 417 | Cyber-Physical Models: Delaying Lock-in in Energy System Design | Prof Kenneth Bryden | 357 | Iowa State University |
| 415 | A level set-based interface-enriched topology optimization for problems that mandate for smooth boundaries | Dr Alejandro M. Aragón | 467 | TU Delft |
| | | | | |

Parallel Session 10 Thu 8th June 2023 11:20-13:00
Topology Opt: Thermal & Fluid Eng. 3

Chair: Dr Peter Dunning **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|---|-------------------------|-----|---|
| 192 | Topology optimization design of rotor-stator devices modeled by the Multiple Reference Frame approach | Dr Diego Hayashi Alonso | 206 | Polytechnic School of The University Of São Paulo |
| 206 | On the topology optimization of labyrinth fluid diodes via integer linear programming | Prof Renato Picelli | 302 | University of São Paulo |
| 397 | Topology optimization of fluid using Large Eddy Simulation (LES): Labyrinth Seal application | Dr SHAHIN RANJBARZADEH | 405 | University of São Paulo |
| 445 | Topography optimisation for plate-type energy storage heat exchangers | Mr Yupeng Sun | 461 | Central South University & University of Southern Denmark |
| 315 | Topology optimization in a conjugate heat transfer problem with modified Darcy flow, traction boundary conditions and a mass flow constraint. | Dr Carl-Johan Thore | 54 | Linköping University |
| | | | | |

Parallel Session 10 **Thu 8th June 2023** **11:20-13:00**
Topology Opt: Methods

Chair: Prof Kenneth Bryden **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------------|-----|--|
| 393 | Robust Topology Optimization with Taylor Series Approximations for Faster Two-Phase Minimum Length Scale Control | Mr Christiaan Mommeyer | 426 | KU Leuven |
| 489 | Density-based topology optimization using Material Point Method | Mr Sanghyun Park | 429 | Ulsan National Institute of Science and Technology |
| 462 | Increasing the Agency of Design Engineers through Human Informed Topology Optimization | Ms Gillian Schiffer | 497 | Massachusetts Institute of Technology |
| 549 | Some recent advances in topology optimization with Discrete Object Projection | Prof James Guest | 561 | Johns Hopkins University |
| 543 | Topology Optimization of Structural Assemblies with Joint Strength Constraints | Prof Julián Norato | 557 | University Of Connecticut |
| | | | | |

Parallel Session 10 **Thu 8th June 2023** **11:20-13:00**
Optimisation of Dynamic Systems

Chair: Prof Jaewoo Lee **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|---|------------------------|-----|--------------------------------------|
| 259 | Optimal design of a silencer using the backpropagation of artificial neural network | Mr Byung Hun An | 61 | Ajou University |
| 523 | Eigenvector Constrained Topology Optimization for Natural Frequency and Buckling Problems | Prof Graeme Kennedy | 530 | Georgia Institute of Technology |
| 126 | Space-time shape optimization of rotating electric machines | Mr Alessio Cesarano | 227 | Ricam |
| 211 | A Hybrid Topology and Shape Optimization Routine Applied to Multiphysical Vibroacoustic Systems | Mr Jonathan Mirpourian | 270 | DTU |
| 195 | Compliance-based decomposition for the topology optimization of robotic structures subject to dynamic loads | Jintin Frank | 112 | Technical University of Munich (TUM) |
| | | | | |

Parallel Session 10 **Thu 8th June 2023** **11:20-13:00**
Optimization: General Applications 5

Chair: Prof H Alicia Kim **Room:** West Wing 5

| Pap # | Title | Author | ID | Institution |
|-------|--|----------------------|-----|---|
| 529 | Physics informed GAN for generating 2D airfoil shapes with required lift coefficients | Mr Kazunari Wada | 539 | The University of Tokyo |
| 496 | Proposal of Identification Method for Material Constants of Industrial Equipment based on Hybrid of Surrogate Optimization and Adjoint Variable Method | Mr So Fukuhara | 538 | Kagawa-university |
| 356 | Generating focusing waveguide acoustic black holes by topology optimization | Prof Martin Berggren | 365 | Umeå University |
| 409 | Efficient Design of Helical Higher-Order Topological Insulators in 3D Elastic Medium in 3D Elastic Medium | Mr Jiachen Luo | 456 | Ningbo Institute of Dalian University of Technology |
| 246 | Optimum stripe structure designs for heat flow control based on orientation optimization | Mr Kodai Tsuruta | 324 | Kyoto University |
| | | | | |

Parallel Session 11 **Fri 9th June 2023** **09:00-10:40**
Topology Opt: Aerospace 4

Chair: Prof Ahmad Najafi **Room:** Boole 1

| Pap # | Title | Author | ID | Institution |
|-------|---|-----------------------|-----|-------------------------------|
| 550 | On The Size And Shape Optimization Of Space Telescope Mirrors And Space Antennas | Markus Schatz | 612 | DHBW Ravensburg |
| 535 | Thermomechanical topology optimization of an optical space instrument | Dr Sanne van den Boom | 135 | TNO |
| 214 | Beyond Simple Shapes in Feature-Mapping Topology Optimization | Dr Hollis Smith | 35 | Air Force Research Laboratory |
| 465 | Finite concurrent truss topology optimization of large structures with multiple repeating cells | Mr Enrico Stragiotti | 103 | ONERA |
| | | | | |
| | | | | |

Parallel Session 11 **Fri 9th June 2023** **09:00-10:40**
Topology Opt: Structural Eng. 5

Chair: Dr Radoslaw Czubacki **Room:** Boole 2

| Pap # | Title | Author | ID | Institution |
|-------|---|--------------------------------|-----|---|
| 309 | Topology Optimization of fiber-reinforced structures considering the Tsai-Hill criterion as stress constraint | Prof EMILIO CARLOS NELLI SILVA | 377 | University of São Paulo |
| 4 | Singular value decomposition and topology optimization | Prof Paolo Venini | 14 | University of Pavia |
| 44 | Proper generalized decomposition for topology optimization of problems with spatially separable geometry | Mr Tomas Pauwels | 120 | KU Leuven |
| 365 | On the plastic and elastic layout optimization of trusses subjected to multiple load conditions | Dr Tomasz Sokół | 161 | Warsaw University of Technology |
| 84 | Free-form ribbed plates using topology-shape-sizing optimization of a plate-beam model | Prof Oded Amir | 173 | Technion - Israel Institute Of Technology |
| | | | | |

Parallel Session 11 **Fri 9th June 2023** **09:00-10:40**
Structural Optimization: Topology Applications

Chair: Prof Neils Aage **Room:** Boole 3

| Pap # | Title | Author | ID | Institution |
|-------|--|------------------|-----|---------------------------------|
| 217 | XIGA level set-based topology optimization considering damage | Dr Lise Noël | 297 | TU Delft |
| 82 | Topology optimization in systems design: a simple approach to distribute design domains | Mr Felix Endress | 15 | Technical University of Munich |
| 468 | Level set-based topology optimization for coated structures considering variable thickness | Mr Nils Hermann | 283 | TU Delft |
| 383 | Surface Texture Optimization via MMC/MMV-based Explicit Topology Optimization Approach | Mr Honghao Tian | 407 | Dalian University of Technology |
| 198 | Process-Specific Topology Optimization for LPBF-based Additive Manufacturing | Mr Sankalp Patil | 202 | Fraunhofer EMI |
| | | | | |

Parallel Session 11 **Fri 9th June 2023** **09:00-10:40**
AI Methods 2

Chair: Prof Casper Andreasen **Room:** Boole 4

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------------|-----|--------------------------------|
| 72 | Reinforcement learning and graph representations for optimization of plane steel building frames | Dr Kazuki Hayashi | 142 | Kyoto University |
| 247 | Improved latent representation of microstructure for multi-scale topology optimization and its applications | Dr Minsik Seo | 211 | Hanyang University |
| 147 | Regularized variable three-term conjugate gradient method to improve the generalization performance of neural network training | Mr Sanghyuk Kim | 93 | Hanyang University |
| 506 | Method for Optimizing Product Designs Based on Rough Set Theory and Convolutional Neural Network | Dr Masakazu Kobayashi | 340 | Toyota Technological Institute |
| 430 | Is-PINNs: Physics-informed neural network localization method with the partition of unity | Ziming Wen | 492 | Hunan University |
| | | | | |

Parallel Session 11 **Fri 9th June 2023** **09:00-10:40**
Multi Objective Optimization

Chair: Dr Denis Kelliher **Room:** Cummins G10

| Pap # | Title | Author | ID | Institution |
|-------|---|--------------------|-----|---------------------------------|
| 174 | A generative engineering approach with multimodal topology optimization towards enhanced structural toughness | Dr Klaus Hoschke | 224 | Fraunhofer EMI |
| 24 | Multiobjective mixed variable structural optimization with a fuselage clip application | Dr Stéphane Grihon | 13 | Airbus Commercial Aircraft |
| 149 | Surrogate-Assisted Multi-Objective Particle Swarm Algorithm for Expensive Optimization Problems | Mr Yao Zhang | 251 | Beijing Institute of Technology |
| 519 | Topology Optimization Method of bonding domain distribution between skin and skeleton of sandwiched-flexible-sheet for restraining bump | Prof Renjing Gao | 425 | Dalian University of Technology |
| 536 | Structural optimization of floor slabs incorporating impact sound insulation | Dr Nathan Brown | 440 | Penn State University |
| | | | | |

Parallel Session 11 **Fri 9th June 2023** **09:00-10:40**
Topology Opt: Thermal & Fluid Eng. 4

Chair: Prof Vassili Toropov **Room:** Cummins 110

| Pap # | Title | Author | ID | Institution |
|-------|--|-------------------------------|-----|---------------------------------|
| 334 | Topology optimization of porous microstructures in wicked heat pipes | Mr Asger Bjerregaard Petersen | 285 | DTU |
| 252 | Topology Optimization of fluid devices in rotating flow using Finite Volume Method | Mr Takamitsu Sasaki | 332 | Kyoto University |
| 183 | Improved parameter robustness for fluidic topology optimization | Mr Maarten Theulings | 284 | TU Delft/NLR |
| 281 | Topology optimization of thermal initial value problems using a harmonic model | Mr Goktug Isiklar | 362 | Technical University of Denmark |
| | | | | |
| | | | | |

Parallel Session 11 **Fri 9th June 2023** **09:00-10:40**
Structural Optimization: Applications 6

Chair: Dr Laura Mainini **Room:** Cummins SID

| Pap # | Title | Author | ID | Institution |
|-------|--|-----------------------------|-----|---------------------------------------|
| 386 | Dehomogenization in stress minimization problems | Dr Alex Ferrer | 412 | CIMNE |
| 62 | An Adaptive Sampling Strategy for Interval Bounds Analysis of Structures | Dr Naigang Hu | 126 | Xidian University |
| | | | | |
| 470 | Nonlinear mechanical metamaterial lattice design via optimization | Dr KANDULA ESWARA SAI KUMAR | 299 | University of California San Diego |
| 401 | Optimization design for smart structures for flying vehicles | Prof Jihong Zhu | 441 | Northwestern Polytechnical University |
| | | | | |



15th World Congress on Structural and Multidisciplinary Optimisation
University College Cork, Ireland

