LARGE-SCALE STRUCTURAL AND FLUIDIC TOPOLOGY OPTIMIZATION

Mingdong Zhou*[1] and Joe Alexandersen[2] and Junji Kato[3]

[1]Shanghai Jiao Tong University
[2]University of Southern Denmark
[3]Nagoya University

MINISYMPOSIUM

The development of topology optimization techniques has revolutionized the way we design and optimize structural and fluidic systems, and with the help of powerful computational resources and advancements in numerical algorithms, researchers can tackle large-scale, multi-physics optimization problems in a more efficient way. However, the optimization of large-scale structures and fluidic systems presents unique challenges due to the high computational cost and the need for efficient numerical algorithms. Additionally, incorporating thermal-fluid-mechanical coupling effects into the optimization process remains a great concern to researchers, as it requires accurate modeling of multiple physics and consideration of complex material-structure behaviors.

To address these challenges, we invite submissions on a wide range of topics related to large-scale structural and fluidic topology optimization for thermomechanical problems. Some potential topics of interest include, but are not limited to:

  Efficient numerical methods for large-scale topology optimization
  Parallel computing methods for large-scale simulation and optimization
  Multi-scale and multi-material topology optimization
  Topology optimization with thermomechanical effects
  Topology optimization for fluid-structure interaction problems

We would like to invite scholars and researchers from academia and industry to contribute actively to our mini-symposium by submitting their latest research findings and ideas.