

SOPTX: A Modular and Extensible Framework for Topology Optimization with Multi-Backend Support

Liang He¹, Huayi Wei^{1,2,*}, and Tian Tian³

¹*School of Mathematics and Computational Science, Xiangtan University, Xiangtan 411105, China*

²*National Center of Applied Mathematics in Hunan, Hunan Key Laboratory for Computation and Simulation in Science and Engineering, Xiangtan 411105, China*

³*School of Mathematics and Computational Science, Xiangtan University, Xiangtan 411105, China*

Running Head: SOPTX: A Framework for Topology Optimization

AMS Subject Classifications: 74P15, 68N30, 65N30

Keywords: Topology Optimization, Multiple Computational Backends, Automatic Differentiation, Modular Framework

Acknowledgments

This work was supported by the National Natural Science Foundation of China (NSFC) (Grant Nos. 12371410, 12261131501) and the Construction of Innovative Provinces in Hunan Province (Grant No. 2021GK1010).

* **Corresponding author.**

Email address: weihuayi@xtu.edu.cn (Huayi Wei)