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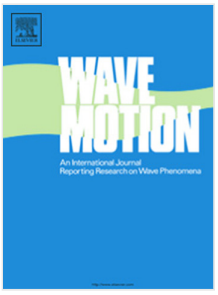

Acoustic topology optimization of sound power using mapped acoustic radiation modes

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*Research Highlights

1. Sound power is directly used as the objective function in the topology acoustic-structural optimization of complex structures.
2. Computational efficiency of sound power prediction is significantly increased by using mapped acoustic radiation modes of the structure.
3. This topology optimization technique can be applied to complex structures of any profile.
4. By locally modifying the local stiffness of a compressor housing, an overall sound reduction of 2.6dB and 1.3dB is obtained by the FEM analysis and experimental results, respectively.