



Multidisciplinary Design Optimization of Lightweight Structures and Systems

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Message from the Guest Editors

Dear Colleagues,

Multidisciplinary design optimization (MDO) solves engineering design problems by incorporating multiple disciplines in concert with mathematical optimization algorithms. MDO is especially relevant when used with lightweight structures and mechanical systems in which the reduction of mass pushes the design to the limits. Lightweight engineering design has once again moved to the forefront in order to enable new technologies and to therefore advance sustainability.

MDO is used throughout the design process, from early phase architecture and design space exploration in concert with models of low computational effort to the final design stage with highly detailed models. This integrated approach counters the adage *a system of optimal components is not necessarily an optimal system* by considering requirements from all disciplines relevant to the design. Growing computational capacities has led to further research in this field and wider industrial application. This integration poses a number of challenges that remain the subject of research.





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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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