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A visual method for systematic multi-objective material selection in engineering design

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This talk will present a visual method for material selection when conflicting objectives are present, e.g. minimizing mass or cost and maximizing performance. Based on Ashby's rational selection methodology, the CES Selector tool allows engineers and materials scientists to find performance indices, plot interactive material charts and quickly identify the Pareto Front in a bi-objective optimization problem or tackle multi-objective selection by plotting penalty functions. Composite materials created with the embedded Hybrid Synthesizer or your own experimental data can be added to the existing database and easily be compared to existing materials.

Biography

Luca Masi is an Aerospace Engineer working at Granta Design as Development Manager. He has previously collaborated with the French Space Agency on software development for bio-inspired space trajectory optimization and on computational techniques for engineering decision-making at the Advanced Space Concepts Laboratory, University of Strathclyde (UK). He is author of chapters for AIAA and IEEE books and journals on these subjects. He also has R&D experience in spacecraft propulsion systems. Luca holds an MSc in Space Engineering with top grade and a BSc in Aerospace Engineering from the University of Pisa (Italy), and is completing a PhD in computational techniques for aerospace engineering applications.

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