

## Nash Equilibrium in Bicriteria Structural Optimization

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Nash equilibrium, a game theoretic concept, has lately been introduced in multicriteria optimization of structures as a computationally cheap alternative to Pareto optima. In this paper we consider the Nash equilibrium as a solution to a bicriteria structural optimization problem. We give a Nash game formulation for a bicriteria optimization problem. This formulation can be done in different ways, giving as many different games, depending on the dimension of the feasible set. It is well known that the Nash equilibrium need not exist even for in well posed problems with smooth criteria. Moreover, the Nash equilibrium tends to be Pareto inefficient. However, if the criteria are in a certain way strictly monotonous and if the mapping they form is a bijection, then there exist a Pareto optimal Nash equilibrium point as we state in 2D-rectangle case of feasible set. We illustrate the theory by a simple static truss optimization example.

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