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多级燃气涡轮的多目标优化方法

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MULTIOBJECTIVE OPTIMIZATION PROCEDURE OF MULTISTAGE GAS TURBINE DESIGN

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摘要 将多级燃气涡轮的设计问题表述为其空气动力学损失和质量为极小化目标的多目标非线性数学规划问题。求优中考虑了多种气动与机械约束条件。采用Craig-Cox模型计算气动损失。给出了有关数值算例。

关键词： 多级燃气涡轮 效率 质量 最优设计

Abstract： The problem of multistage design of gas turbines is formulated as a multiobjective nonlinear programming problem with the objective functions of minimum aerodynamic loss and total mass of the turbine. The aerodynamic as well as the mechanical constraints are considered in the problem formulation. The Craig-Cox loss model is used and a numerical example is given.

Keywords： multistage gas turbine efficiency mass optimum design

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