模糊最佳化應用於合理穩健工程設計

This paper presents a robust engineering design method and process that using the technique of multiobjective fuzzy optimization combined the parameter variation pattern to obtain the optimum objective design as well as the most robust feasibility. The linearization of active constraints serves for estimating the increment of each design variable. The final mathematical optimization formulation is fuzzy and nonlinear. The robustness of feasibility and the solution algorithm are introduced step by step in the paper. Two mechanical engineering designs are given to illustrate the presented design process. The result has the highest degree of design satisfaction defined by the degree of membership functions.