عنوان مقاله:

Application of Fuzzy System Theory to Conceptual Airplane Design cycle

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خلاصه مقاله:

Many factors and disciplines shape the design space of an airplane [1, 2]. Considering the effect of multidisciplinary nature of airplanes , establish an uncertain environment for decision making to choose a design point on design space of an airplane, hence advanced design methods need some new strategies and decision making tools which including the effect of different disciplines and uncertainty. This paper describes a fuzzy approach for the selection of airplane design point. This method uses fuzzy system theorem as a decision making tool which considers the effects of multidisciplinary nature of airplane and the effects of uncertainty. For case study a set of light business jets are chosen and the fuzzy system applies to them to find engine thrust and wing area, which are two essential parameters of the airplanes in conceptual and preliminary airplane design cycles. The real value of engine thrusts and wing areas, and the fuzzy system calculated values of the same parameters are in agreement in an acceptable way. For comparison, results are shown in curves.

کلمات کلیدی:

Fuzzy, conceptual airplane design, fuzzy decision making, multidisciplinary

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