

عنوان مقاله:

A new algorithm for geometric optimization with a single-term exponent constrained by bipolar fuzzy relation equations

محل انتشار:

مجله سیستم های فازی، دوره 18، شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

A geometric programming problem subject to bipolar max-product fuzzy relation equation constraints is studied in this paper. Some necessary and sufficient conditions are given for its solution existence. A lower and upper bound on the solution set of its feasible domain is obtained. Some sufficient conditions are proposed to determine some its optimal components without its resolution. A modified branch-and-bound method is extended to solve the problem. Moreover, an efficient algorithm is proposed to solve the problem based on the simplification operations and the modified branch-and-bound method. Its computational complexity is carefully analyzed. Some examples are given to show the importance of the problem and to illustrate the process of the algorithm. Finally, an analytic and comparative study is done to show the efficiency of the simplification procedures.

کلمات کلیدی:

Bipolar fuzzy relation equation, geometric programming, Max-product composition, modified branch-and-bound method

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