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### 基于遗传算法的大型空间结构模型降阶

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### MODEL REDUCTION FOR LARGE SPACE STRUCTURAL SYSTEMS VIA GENETIC ALGORITHMS

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摘要

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#### 摘要

采用遗传算法求解大型空间结构的模型降阶问题。给出了模型降阶的数学表示和所用遗传算法的有效形式, 即编码方式、适值方式、交叉方式和变异方式等。仿真实例说明, 遗传算法优于标准内平衡法和Hopfield神经网络方法。

关键词: 遗传一算法 模型一降阶 神经网络

#### Abstract:

The model reduction problem of large space structure is solved by direct numerical optimization using genetic algorithms. The mathematic model of the problem and the used genetic algorithms are given. The success of genetic approach is illustrated through examples, including the model reduction of a two bay truss. Results are compared to those obtained by standard internal balancing and by a Hopfield neural network approach. It is concluded that genetic algorithms are a viable solution to the model reduction problem of large space structures.

Keywords: genetic-algorithms model-reduction neural nets

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