RESEARCHING MODEL ORDER REDUCTION BASED ON SCHUR ANALYSIS

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TÓM TẮT:

In recent years, many researches have been done in the area of the model order reduction. There have been many order reduction algorithms introduced in which retaining the important poles of the original system. This paper presents a new model order reduction algorithm, which is based on Schur analysis, it is based on the idea of keeping the important poles of the original system in the order reduction process. This algorithm transforms matrix A of the higher-order original system to upper - triangle matrix on which the poles are arranged in descending important properties on the main diagonal of the upper - triangle matrix. At the same time, the authors also have improved the algorithm in order to transform the parameters of the reduced system from the complex numbers to the real number. The effectiveness of the new model order reduction algorithm is illustrated by two examples, reducing order of higher-order SISO system and reducing order of higher-order controller of the robot balanced system. The simulation results show the correctness of the proposed algorithm.