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A Hybrid Method for Determination of Effective Poles Using Clustering Dominant Pole Algorithm

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Abstract : In this paper, an analysis of some model order reduction techniques is presented. A new hybrid algorithm for model order reduction of linear time invariant systems is compared with the conventional techniques namely Balanced Truncation, Hankel Norm reduction and Dominant Pole Algorithm (DPA). The proposed hybrid algorithm is known as Clustering Dominant Pole Algorithm (CDPA) is able to compute the full set of dominant poles and its cluster center efficiently. The dominant poles of a transfer function are specific eigenvalues of the state space matrix of the corresponding dynamical system. The effectiveness of this novel technique is shown through the simulation results.

Keywords : balanced truncation, clustering, dominant pole, Hankel norm, model reduction
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