

ABSTRACT:

In this paper, we present some new results on frequency-weighted balanced truncation which is a significant improvement on Lin and Chiu's frequency-weighted balanced truncation technique. The reduced-order models, which are guaranteed to be stable in the case of double-sided weighting, are obtained by direct truncation. Two sets of simple, elegant and easily calculatable a priori error bounds are also derived. Numerical examples and comparison with other well-known techniques show the effectiveness of the proposed technique.