Model Order Reduction of Interval Systems for Mixed Methods

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Abstract

Mixed method is a combination of classical reduction methods and stability preserving methods. The present work was proposed a new method for model order reduction of systems with uncertain parameters. The bounds on the uncertain parameters are known a priori. Two separate methods are used for finding parameters of the numerator and denominator. The numerator parameters are obtained by either of these methods such as differentiation method, factor division method, cauer second form or Pade approximation method. The denominator is obtained by the differentiation method in all the cases. A numerical example has been discussed to illustrate the procedures. From the above mixed methods, differentiation method and cauer second form as resulted in better approximation when compared with other methods. The errors between the original higher order and reduced order models have also been highlighted to support the effectiveness of the proposed methods.