

Acta Mechanica Sinica » 2011, Vol. 27 » Issue (5) :757-766 DOI:

Research Papers

[Current Issue](#) | [Next Issue](#) | [Archive](#) | [Adv Search](#)
[<< Previous Articles](#) | [Next Articles >>](#)

An efficient technique for recovering responses of parameterized structural dynamic problems

null

State Key Laboratory of Advanced Design and Manufacturing for Vehicle Body, College of Mechanical and Vehicle Engineering, Hunan University, 410082 Changsha, China

Abstract

Reference

Related Articles

Download: [PDF \(2914KB\)](#) [HTML \(1KB\)](#) **Export:** [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

Abstract In this article, an effective technique is developed to efficiently obtain the output responses of parameterized structural dynamic problems. This technique is based on the conception of reduced basis method and the usage of linear interpolation principle. The original problem is projected onto the reduced basis space by linear interpolation projection, and subsequently an associated interpolation matrix is generated. To ensure the largest nonsingularity, the interpolation matrix needs to go through a time-node choosing process, which is developed by applying the angle of vector spaces. As a part of this technique, error estimation is recommended for achieving the computational error bound. To ensure the successful performance of this technique, the offline-online computational procedures are conducted in practical engineering. Two numerical examples demonstrate the accuracy and efficiency of the presented method.

Keywords:

Received 2010-03-31; published 2011-09-27

Corresponding Authors: X. Han **Email:** hanxu@hun.cn;xu_han688@hotmail.com

Cite this article:

Z. Zhang X. Han C. Jiang. An efficient technique for recovering responses of parameterized structural dynamic problems[J] Acta Mechanica Sinica, 2011, V27(5): 757-766

Service

- ▶ [Email this article](#)
- ▶ [Add to my bookshelf](#)
- ▶ [Add to citation manager](#)
- ▶ [Email Alert](#)
- ▶ **RSS**

Articles by authors

- ▶ ZHANG Zheng
- ▶ HAN Xu
- ▶ JIANG Chao