

Accepted Manuscript

Vibrational characteristics of embedded microbeams lying on a two-parameter elastic foundation in thermal environment

Bekir Akgöz, Ömer Civalek



PII: S1359-8368(18)30945-4

DOI: [10.1016/j.compositesb.2018.05.049](https://doi.org/10.1016/j.compositesb.2018.05.049)

Reference: JCOMB 5719

To appear in: *Composites Part B*

Received Date: 23 March 2018

Revised Date: 24 May 2018

Accepted Date: 29 May 2018

Please cite this article as: Akgöz B, Civalek Ö, Vibrational characteristics of embedded microbeams lying on a two-parameter elastic foundation in thermal environment, *Composites Part B* (2018), doi: 10.1016/j.compositesb.2018.05.049.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Vibrational characteristics of embedded microbeams lying on a two-parameter elastic foundation in thermal environment

Bekir Akgöz^{a,1} and Ömer Civalek^a

^aAkdeniz University, Civil Engineering Department,
Division of Mechanics, Antalya-TURKEY

Abstract

In the present work, thermo-elastic vibrational behavior of thick microbeams embedded in a two-parameter elastic foundation is studied. A Winkler-Pasternak type elastic foundation model is employed to simulate the interactions between microbeam and elastic medium. Size-dependent constitutive equations and associated boundary conditions are obtained by applying dynamic version of virtual work's principle based on modified couple stress and various beam theories. Several numerical examples are presented to examine the sensibility of various parameters associated with slenderness ratio, temperature rise, length scale, Winkler and shear layer parameters on the natural frequencies and critical temperature point of embedded microbeams.

Keywords: B. Microstructures; B. Thermomechanical; B. Vibration; C. Analytical modelling

¹Corresponding author: Tel: +90-242-3106360; Fax: +90-242-3106306

E-mail address: bekirakgoz@akdeniz.edu.tr

Download English Version:

<https://daneshyari.com/en/article/7211846>

Download Persian Version:

<https://daneshyari.com/article/7211846>

[Daneshyari.com](https://daneshyari.com)