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Explicit solution for the natural frequency of structures with partial viscoelastic treatment - DTU Orbit (09/11/2017)

Explicit solution for the natural frequency of structures with partial viscoelastic treatment

The free vibration characteristics of structures with viscoelastic treatment are represented by the complex-valued natural frequencies. The assumed single mode representation associated with the low-frequency stiffness of the viscoelastic treatment is modified by a correction term representing the influence from residual vibration modes. The correction term is eliminated in terms of the corresponding natural frequency associated with the high-frequency stiffness of the viscoelastic treatment, whereby an expression is obtained for the complex-valued natural frequency, which only requires the solution of two real-valued eigenvalue problems.

General information

State: Published
Organisations: Department of Mechanical Engineering, Solid Mechanics
Authors: Høgsberg, J. B. (Intern)
Pages: 784-790
Publication date: 2016
Main Research Area: Technical/natural sciences

Publication information

Journal: Mechanics of Advanced Materials and Structures
Volume: 23
Issue number: 7
ISSN (Print): 1537-6494
Ratings:
BFI (2017): BFI-level 1
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): SJR 0.553 SNIP 0.783 CiteScore 1.15
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): SJR 0.485 SNIP 0.665 CiteScore 0.91
BFI (2014): BFI-level 1
Scopus rating (2014): SJR 0.474 SNIP 0.623 CiteScore 0.85
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 1
Scopus rating (2013): SJR 0.644 SNIP 0.723 CiteScore 0.96
ISI indexed (2013): ISI indexed yes
BFI (2012): BFI-level 1
Scopus rating (2012): SJR 0.637 SNIP 0.821 CiteScore 0.83
ISI indexed (2012): ISI indexed yes
BFI (2011): BFI-level 1
Scopus rating (2011): SJR 0.648 SNIP 1.032 CiteScore 1.03
ISI indexed (2011): ISI indexed yes
BFI (2010): BFI-level 1
Scopus rating (2010): SJR 0.581 SNIP 1.047
BFI (2009): BFI-level 1
Scopus rating (2009): SJR 0.624 SNIP 0.747
BFI (2008): BFI-level 1
Scopus rating (2008): SJR 0.836 SNIP 0.874
Scopus rating (2007): SJR 0.773 SNIP 1.264
Scopus rating (2006): SJR 0.912 SNIP 1.233
Scopus rating (2005): SJR 0.648 SNIP 1.136
Scopus rating (2004): SJR 0.379 SNIP 0.788
Scopus rating (2003): SJR 0.374 SNIP 0.623
Scopus rating (2002): SJR 0.717 SNIP 0.743
Scopus rating (2001): SJR 0.648 SNIP 1.08
Scopus rating (2000): SJR 0.517 SNIP 0.446

Scopus rating (1999): SJR 0.783 SNIP 1.248
Original language: English
Structural dynamics, Mechanical vibrations, Viscoelastic damping, Natural frequency, Modal analysis
Electronic versions:
hogsberg_2016_viscoelastic_frequency_postprint.pdf. Embargo ended: 02/02/2017
DOIs:
10.1080/15376494.2015.1029166
Source: FindIt
Source-ID: 2264755618
Publication: Research - peer-review › Journal article – Annual report year: 2016