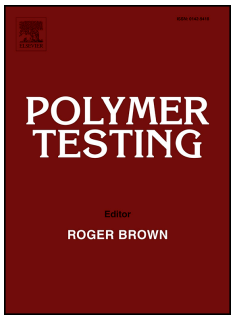
Accepted Manuscript



Experimental and numerical study on the modal characteristics of hybrid carbon fiber composite foam filled corrugated sandwich cylindrical panels

Jin-Shui Yang, Li Ma, Kai-Uwe Schröder, Yun-Long Chen, Shuang Li, Lin-Zhi Wu, Rüdiger Schmidt

PII: S0142-9418(18)30110-7

DOI: 10.1016/j.polymertesting.2018.03.040

Reference: POTE 5392

To appear in: *Polymer Testing*

Received Date: 19 January 2018

Revised Date: 18 March 2018

Accepted Date: 22 March 2018

Please cite this article as: J.-S. Yang, L. Ma, K.-U. Schröder, Y.-L. Chen, S. Li, L.-Z. Wu, Rü. Schmidt, Experimental and numerical study on the modal characteristics of hybrid carbon fiber composite foam filled corrugated sandwich cylindrical panels, *Polymer Testing* (2018), doi: 10.1016/j.polymertesting.2018.03.040.

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Jin-Shui Yang [a], Li Ma [b, *], Kai-Uwe Schröder [c], Yun-Long Chen [b], Shuang Li [a], Lin-Zhi Wu [a, b], Rüdiger Schmidt [c]

[a] *Key Laboratory of Advanced Ship Materials and Mechanics, College of Aerospace and Civil Engineering, Harbin Engineering University, Harbin 150001, PR China*

[b] *Center for Composite Materials, Harbin Institute of Technology, Harbin 150001, PR China*

[c] *Institute of Structural Mechanics and Lightweight Design, RWTH Aachen University, Wüllnerstraße 7, D-52062 Aachen, Germany*

Abstract

To further improve the vibration damping behavior of carbon fiber composite sandwich structures without too much redundant weight, empty and foam filled corrugated sandwich cylindrical panels (CSCPs) are designed and their corresponding modal characteristics are investigated experimentally and numerically. Axial and circular CSCPs (ACSCPs and CCSCPs) are simultaneously manufactured by a hot press moulding and post-assembly approach. It has been demonstrated that foam filled CSCPs can obviously improve the structural damping compared to the empty CSCPs without significant change of the corresponding natural frequencies. Furthermore, validated finite element analysis (FEA) models are adopted to systematically study the effects of the corrugated inclination angle, sandwich core thickness, arc-length and

[*] Corresponding author, Tel.:+86 451 86402376; fax: +86 451 86402376.
E-mail address: mali@hit.edu.cn (Li. Ma)