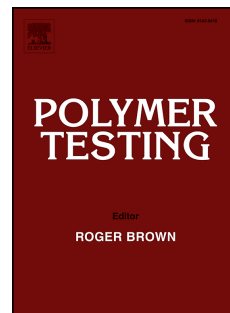


# Accepted Manuscript

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Product Performance

# Localized damage response of carbon fiber reinforced polymer composite sandwich panel after thermal exposure

Jiayi Liu<sup>a,b</sup>, Tao Kan<sup>a</sup>, Jia Lou<sup>c</sup>, Linling Xiang<sup>a</sup>, Xiang Zhu<sup>a,\*</sup>, Yongsheng Tang<sup>b</sup><sup>a</sup>School of Naval Architecture and Ocean Engineering, Huazhong University of Science and Technology, Wuhan 430074, PR China<sup>b</sup>Hudong-Zhonghua Shipbuilding(Group) Co., Ltd, Shanghai 200129, PR China<sup>c</sup>Piezoelectric Device Laboratory, Department of Mechanics and Engineering Science, Ningbo University, Ningbo, Zhejiang 315211, PR China

**Abstract:** An experimental study was conducted to investigate the effect of thermal exposure on indentation behavior of carbon fiber reinforced polymer composite sandwich panel (CFRPCSP) with pyramidal truss cores. Composite sandwich panels were fabricated by the hot press molding method. Subsequently, composite sandwich panels were exposed to different temperatures for 6 h. After thermal exposure, quasi-static indentation tests were carried out at room temperature. Then, the effect of thermal exposure on the failure mechanism, indentation load and energy absorption were analyzed and discussed. The results showed that the indentation load and energy absorption decreased as exposure temperature increased, which was caused by the degradation of the matrix properties and fiber-matrix interface properties at high temperature. In addition to the decrease of the indentation load and energy absorption, the failure modes also changed with exposure temperature. It is expected that this study can provide useful information for the design and application of composite sandwich panel with pyramidal truss cores at high temperature.

**Keywords:** Composite; Sandwich panel; Indentation behaviors; Thermal exposure.

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\*Corresponding author at: School of Naval Architecture and Ocean Engineering, Huazhong University of Science and Technology, Wuhan 430074, PR China.

E-mail address: [zhuxiang@hust.edu.cn](mailto:zhuxiang@hust.edu.cn) (Xiang Zhu).

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