

# Investigations on impact behaviors of composite sandwich structures with porous cores

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## ABSTRACT

This paper studies the impact resistance behavior of the composite sandwich structures with foam cores. The foam cores used in this research were made of the thermoplastic materials, such as Ethylene Vinyl Acetate Copolymer, (EVA), to replace the thermosetting foam. This research had two objective, one is the simulation and the other is drop test. The simulation was performed by using ANSYS/LS-DYNA transient dynamic finite element analysis and the experiments was performed with the high-speed camera to shoot on all of the drop test processes. This paper was used the two methods to explore the sandwich structure deformation, energy absorption and the impactor reaction force. The results show that the sandwich structures not only possess impact resistance and energy absorption but also effectively reduce the instant backlash suffered injuries on impactor.

Keywords : Impact、 Composite、 Finite element method、 Sandwich structure、 ANSYS/LS-DYNA

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