Hexagonal Honeycomb Sandwich Plate Optimization Using Gravitational Search Algorithm

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Abstract : Honeycomb sandwich panels are increasingly used in the construction of space vehicles because of their outstanding strength, stiffness and light weight properties. However, the use of honeycomb sandwich plates comes with difficulties in the design process as a result of the large number of design variables involved, including composite material design, shape and geometry. Hence, this work deals with the presentation of an optimal design of hexagonal honeycomb sandwich structures subjected to space environment. The optimization process is performed using a set of algorithms including the gravitational search algorithm (GSA). Numerical results are obtained and presented for a set of algorithms. The results obtained by the GSA algorithm are much better compared to other algorithms used in this study.

Keywords : optimization, gravitational search algorithm, genetic algorithm, honeycomb plate

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