

CHARACTERIZATION OF INTERFACIAL STRENGTH OF SYNTACTIC FOAM BY UNIT CELL FINITE ELEMENT MODEL

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The interfacial strength between glass hollow microspheres and epoxy in epoxy-based syntactic foam was investigated using finite element method. The stiffness of the foam in tension and compression was studied by unit cell type finite element model containing a microsphere and an epoxy matrix. The changes in the stiffness of the foams having different interfacial strength were analyzed by introducing interfacial elements between the microsphere and the matrix in the model. The tension and compression moduli of the foam was studied by the model, in terms of the stiffness of the interfacial elements. Finally, the moduli of the foam having different volume fractions of the microspheres were evaluated by experiments and compared to the results of the model to characterize the interfacial strength between the microsphere and the matrix.

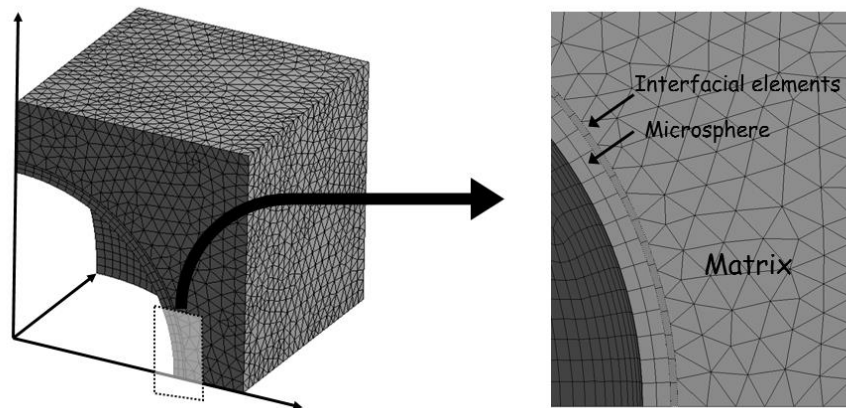


Figure 1 –Concept, geometry and finite element meshes of unit cell model for microsphere/epoxy syntactic foam with interfacial elements.