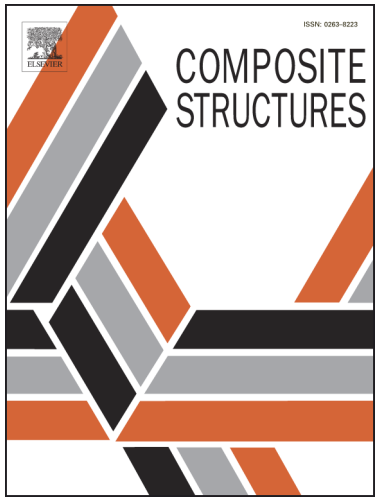

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Bounds for the dynamic modulus of unidirectional composites with bioinspired staggered distributions of platelets

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ABSTRACT

Load-bearing biological materials like bone, nacre and tendon are bio-composites with superior mechanical properties to resist static and dynamic loadings and thus have been intensively studied not only for understanding the structure-property relationship but also for developing novel bioinspired materials. Here a theoretical framework was developed to establish the bounds for the storage and loss moduli of the bioinspired staggered composites. The bounds were first verified by the finite element analysis. Then, the framework was utilized to study how the storage and loss moduli of the bioinspired composites vary against a series of geometrical and

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