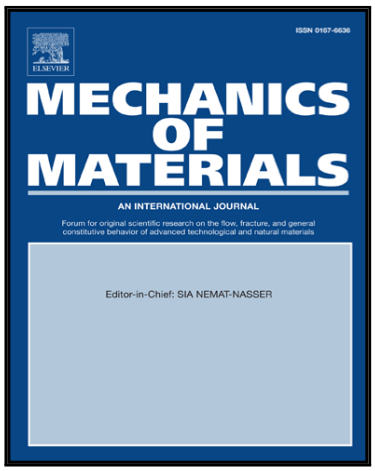

Replacement relations for thermal conductivities of heterogeneous materials having different matrices

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Highlights

- Replacement relations that link the overall thermal or electrical conductivities of heterogeneous materials having the same microstructure and inhomogeneities, but different matrix materials are derived. Relations of this kind have never been proposed in literature before.
- These replacement relations can be used to determine conductivities of the small particles in matrix composites which cannot be evaluated by other methods. The corresponding equation is derived.
- The relations are verified by comparison with FEA calculations and with experimental data available in literature.