Influence of the fiber clustering on the apparent and effective elastic properties of short fiber reinforced composites

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Abstract. The apparent and effective elastic properties of short fiber reinforced composites are investigated. The focus is on the determination of the influence of fiber clustering on the response of the heterogeneous material. Similar approaches have been pursued by [1] for circular or spherical particles.

Periodic artificial microstructures are generated and the a high quality discretization based on Netgen [2] is created for the use with the finite element model. A Monte Carlo type study based on the finite element method is carried out to provide estimates of the influence of microstructural changes onto the elastic parameters.

References