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Fatigue of Multiscale Nanoreinforced Composites: 3D Modelling

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Abstract : 3D numerical simulations of fatigue damage of multiscale fiber reinforced polymer composites with secondary nanoclay reinforcement are carried out. Macro-micro FE models of the multiscale composites are generated automatically using Python based software. The effect of the nanoclay reinforcement (localized in the fiber/matrix interface (fiber sizing) and distributed throughout the matrix) on the crack path, damage mechanisms and fatigue behavior is investigated in numerical experiments

Keywords: computational mechanics, fatigue, nanocomposites, composites

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