

Fatigue of Multiscale Nanoreinforced Composites: 3D Modelling

Authors : Leon Mishnaevsky Jr., Gaoming Dai

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

Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020