

عنوان مقاله:

Composite Materials with Damage

محل انتشار:

دومین کنگره ملی مهندسی عمران (سال: 1384)

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خلاصه مقاله:

A new theory of composite damage mechanics at the mesoscale level has been developed in [Eskandari-Ghadi et al., 2004] where the mechanical behavior of a distressed composite has been described by the combination of two different phases (matrix and inclusion), which are linear elastic isotropic materials. The matrix represents the original material without damage, and the inclusions represent the material with ultimate damage. The inclusion volume fraction is used as the variable to characterize the extent of the damage, instead of the conventional scalar damage parameter. The major difference from the scalar damage theory is that the elastic modulus of the inclusion is not zero, which allows various combinations of the two constituent phases, representing different forms of damage evolutions. As an example a linear softening stress-strain curve is used to construct the damage models. The stress of distressed composite can be expressed as a function of the level of damage, and as a result, the upper and lower bounds for the stress can be obtained for a given level of damage.

کلمات کلیدی:

damage mechanics, composite mechanics, composite damage mechanics, concrete

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