A CRITICAL REVIEW ON THE PREDICTION OF ELASTIC PROPERTIES OF BICONTINUOUS MATERIALS BASED ON EFFECTIVE MEDIUM APPROXIMATION

Jack Widjajakusuma

Jurusan Teknik Sipil, Universitas Pelita Harapan

Abstract

The purpose of this article is to review some mixing laws based on the effective medium approximation in predicting the effective elastic properties of bicontinuous media. Specific attention is assigned to the systematic derivation of these mixing laws exploiting the information of the microstructures of bicontinuous materials. In order to verify the accuracies of the various mixing laws, the predicted effective values of real bicontinuous materials are compared to those effective values obtained by finite element simulation.

Keywords: effective elastic properties, effective medium approximation, composite materials