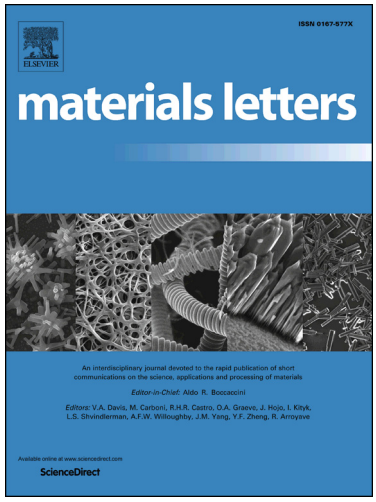

Contiguity as a governing parameter to predict the strength of porous materials

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Contiguity as a governing parameter to predict the strength of porous materials

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Abstract – With increasing demand for porous materials with their popular use in functional applications, there is a strong need to develop a decent strength prediction method for porous materials. The Gibson-Ashby (G-A) model, which is the most common prediction method, has served this purpose. This model is constructed upon a weakly-structured open-cell porous material, thus providing a 'lower bound' of yield strength. This study considers 'contiguity' as a governing parameter to predict the strength of porous materials and proposes a modified G-A model by incorporating the concept of contiguity. This paper supports preliminary evidence that the new model better describes the strength of selected porous materials.

Keywords: *Porous materials; foams; composite materials; modeling; powder processing; yield strength*