

عنوان مقاله:

Stochastic Scaled Boundary Finite Element Method in Fracture of Rectangular Nano-graphene Sheets

محل انتشار:

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خلاصه مقاله:

In this paper, the stochastic failure of rectangular nanographene sheets is investigated using scaled boundary finite element method. The results of analysis and simulation were compared with the results of Monte Carlo simulation which showed that the results of the two methods are well matched. More, the results show that the third moment of stress is zero, which proves the fact that the random input parameters are normal. The failure probability was then calculated for all nanographene sheet bonds. The results show that the maximum possible bands in failure are tip crack joints, which is ۹۵% in a sheet with a central crack of ۹۰° and ۵۸% for a sheet with a central crack of ۰° . After crack tip, bands near the crack edge are most likely to fail. In addition, the probability of failure at normalized crack length was investigated. The results show that the maximum sensitivity of the fracture probability in the central crack is .when the crack angle is ۹۰° and normalized length of the crack is in the last considered group

کلمات کلیدی:

(Stochastic response analysis, Nano-graphene, Scaled Boundary Finite Element (SBFEM)

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