ГРАЂЕВИНСКИ ФАКУЛТЕТ СУБОТИЦА

Објављен рад

Computers and Concrete

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The concrete fatigue analysis can be performed with the use of fracture mechanics. The fracture mechanics defines the fatigue crack propagation as the relationship of crack growth rate and stress intensity factor. In contrast to metal, the application of fracture mechanics to concrete is more complicated and therefore many authors have introduced empirical expressions using Paris law. The topic of this paper is development of a new prediction of fatigue crack propagation for concrete using rheological-dynamical analogy (RDA) and finite element method (FEM) in the frame of linear elastic fracture mechanics (LEFM). The static and cyclic fatigue three-point bending tests on notched beams are considered. Verification of the proposed approach was performed on the test results taken from the literature. The comparison between the theoretical model and experimental results indicates that the model proposed in this paper is valid to predict the crack propagation in flexural fatigue of concrete.