

Numerical and Experimental Investigation of Mixed-Mode Fracture of Cement Paste and Interface Under Three-Point Bending Test

Authors : S. Al Dandachli, F. Perales, Y. Monerie, F. Jamin, M. S. El Youssofi, C. Pelissou

Abstract : The goal of this research is to study the fracture process and mechanical behavior of concrete under I-II mixed-mode stress, which is essential for ensuring the safety of concrete structures. For this purpose, two-dimensional simulations of three-point bending tests under variable load and geometry on notched cement paste samples of composite samples (cement paste/siliceous aggregate) are modeled by employing Cohesive Zone Models (CZMs). As a result of experimental validation of these tests, the CZM model demonstrates its capacity to predict fracture propagation at the local scale.

Keywords : cement paste, interface, cohesive zone model, fracture, three-point flexural test bending

Conference Title : ICFMCCS 2023 : International Conference on Fracture Mechanics of Concrete and Concrete Structures

Conference Location : Jeddah, Saudi Arabia

Conference Dates : February 20-21, 2023