Bayesian simulation and sensitivity analysis for modeling of single fiber pullout test

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Abstract:

In Fiber Reinforced Concrete (FRC), the use of short and long fibers is essential for controlling shrinkage and microcracks and/or providing ductility. The contribution of fibers to FRC performance depends on the intrinsic properties of both fibers and cementitious matrix and on the fibers distributions. In addition, single fiber pullout remains one of the most crucial testing that leads to more understanding of the behavior of FRC mixtures. As a result, fiber pullout experiments and modeling techniques have been developed and reported extensively over the last three decades. The majority of the reported work assumes deterministic properties for fibers, matrix, and interface when analyzing the behavior of fiber pullout response. This paper studies the effect of the statistical variation of the intrinsic properties of fiber, matrix and their interface on the mechanical performance of single fiber pullout. Sensitivity analysis was

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