PARAMETER IDENTIFICATION IN DYNAMIC FRACTURE MODEL BY USING BAYESIAN INFERENCE

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This work presents a fracture parameter identification procedure in dynamic fracture simulations using discrete lattice model [1]. The model is based on embedded strong discontinuities [2] to correctly simulate softening branch which is not dependent on mesh. The exponential softening behaviour of the material is defined with the ultimate stress and fracture energy parameters. The discrete nature of the model allows to represent irregular fracture patterns that are not pre-defined in the domain, while the crack can propagate in mode I and mode II. The model fracture parameters, such as tensile and shear strength and fracture energies for both modes are identified by using Bayesian inference, where stochastic Markov Chain Monte Carlo (MCMC) method is used [3]. The reference solution is conducted with model based on quadrilateral enhanced Q6 elements equipped with embedded strong discontinuities [4].

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