Optimization of the Numerical Fracture Mechanics

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Abstract : In this work, we present numerical simulations of the quasi-static crack propagation based on the variation approach. We perform numerical simulations of a piece of brittle material without initial crack. An alternate minimization algorithm is used. Based on these numerical results, we determine the influence of numerical parameters on the location of crack. We show the importance of trying to optimize the time of numerical computation and we present the first attempt to develop a simple numerical method to optimize this time.