Giovanni Formica, Stefania Fortino, Mikko Lyly: *A ϑ method–based numerical simulation of crack growth in linear elastic fracture*; Helsinki University of Technology, Institute of Mathematics, Research Reports A493 (2006).

Abstract: *This paper presents a method for the automatic simulation of quasi–static crack growth in 2D linear elastic bodies with existing cracks. A finite element algorithm, based on the so-called ϑ method, provides the load vs. crack extension curves in the case of stable rectilinear crack propagation. Since the approach is both theoretically general and simple to be performed from a computational point of view, it appears very suitable for the extension to curvilinear crack propagation in nonlinear materials.*

AMS subject classifications: 47A10, 65F10

Keywords: Linear Elastic Fracture Mechanics (LEFM), ϑ method, Stable crack propagation, Finite Element Method (FEM)

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