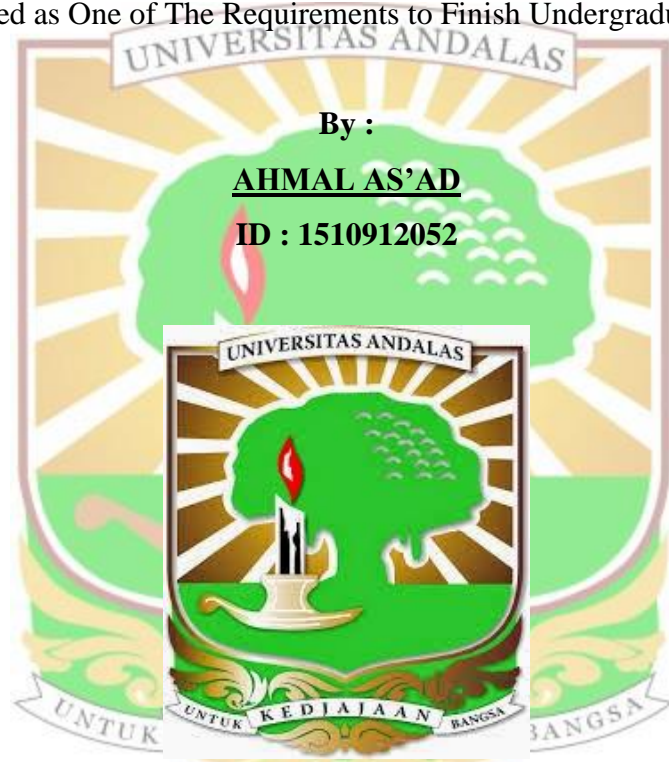# FINAL PROJECT

ANALYSIS OF STRESS INTENSITY FACTORS OF CRACK BRANCHING ON THE PLATE

Is Conducted as One of The Requirements to Finish Undergraduate Program

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ABSTRACT

Analysis of stress intensity factors of crack branching were studied on the difference plate ratio with an initial edge crack branching under tensile load using finite element method. Variation of main crack length, crack branching length, and crack branching orientation are investigated. It was established that crack branching occurs when there is instability of stress at crack-tip area. In most cases, crack will branch out with symmetrical form. It is in appropriated that one important parameter to analyze the condition of stress at crack tip is stress intensity factor. Stress intensity factors then are obtained by using the method of finite element. Simulation result using finite element method show that K_I is proportional with main crack length and crack branching length. Orientation of crack branching is dependent on another parameter. K_I is inversely proportional with the ratio of length-width plate

Keywords: crack branching, stress intensity factor (K_I), finite element method