- **ULT-03-010**

Identification of failure in welded specimens by means of genetic algorithms

Traian Badea
Institute of Solid Mechanics, Romanian Academy
Ctin Mille 15, P. 0. Box 1-863
70701 Bucharest, Romania
Phone=+40 1 3153810
Fax=+40 1 3126736
email=traianbadea@yahoo.comil.com

The paper presents a new non-destructive method for detecting the failure in laser welded specimens. A decisive method in fatigue identification has not been developed as yet. The identification of defective welding steel joints is transformed into an optimisation problem with discrete combinations and then a genetic algorithm (GA) is applied to solve it. GA is a kind of optimisation technique based on the evolutional process such as natural selection, crossover and mutation in biological systems. The Interaction Simulation Approach LISA) is used to simulate the propagation of ultrasonic pulses in a laser welding of two structural elements.