

# Eddy Current Analysis of Titanium submitted to the stress

**A. Ziouche, M. Zergoug, M. Amir**

**Abstract :** Inspection by eddy current is one of techniques that are very used in nondestructive evaluation of materials. The object of this work is to carry out an analysis of the residual stresses in the material created by external solicitations and analyses by eddy currents as a non destructive testing method. The analysis of the eddy current results will be compared to the results obtained by the traditional methods (X-rays diffraction...) in order to determine a relation between the non-destructive tests and destructive. It was shown in this work that all microstructure modifications of the samples were detected and they can be quantified by eddy current impedance measurement. The impedance analysis by eddy current will be correlated with the microstructure changes observed in the material because of plastic damage and fatigue.

**Keywords :** NDT, Stress, Eddy Current, impedance, titanium