

**Structural-thermal FE simulation of vibration and heat generation of cracked steel plates due to ultrasound excitation used for vibrothermography**

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**Abstract**

A major drawback of ultrasound excited thermography applied to metal components manifests in the pronounced frequency dependence of crack detectability. In order to investigate the crack face interaction by which it is constituted whether a certain crack can be detected or not structural-thermal Finite Element simulations of a massive steel plate are conducted using ANSYS/LS-DYNA considering the physical roughness of the crack faces. The achieved numerical results are in a good agreement with experimental data of a performed ultrasonic sweep thermography (UST).

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