

عنوان مقاله:

Estimation of the Effective Thermal Properties in a Metallic Medium by an Inverse Technique using Temperatures Measureme

محل انتشار:

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خلاصه مقاله:

In order to master the use of electric machines and to minimize its thermal losses, the knowledge of thermo-physical properties of metallic materials that constitute them, is important. This study deals with the estimation of several thermal properties in a metallic medium. The system under investigation is a rectangular metallic plate, which is submitted to an homogenous heat power on the volume sample. The direct problem simulates numerically the system and the experimental conditions. An iterative procedure, based on minimizing a sum of squares norm with the Levenberg-Marquardt method, is used to solve the inverse problem. In order to characterize the thermal behavior of metallic materials, an experimental set-up was built. The measured temperature data using infrared camera are used to estimate the effective thermal conductivity, the effective volumetric heat capacity as well as the global heat transfer coefficient with the environment.

کلمات کلیدی:

Thermal properties, Experimental characterization, Numerical simulation

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