

Some statistical inversion approaches for simultaneous thermal diffusivity and heat source mapping

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Abstract

The mapping of thermophysical properties from thermal images provided by an infrared camera is a difficult inverse problem, due to the large amount of data to be processed and large number of parameters to be estimated, as well as the low signal-to-noise ratio. It is thus of great interest to implement estimation approaches of low computational cost that can accurately cope with such inherent difficulties. In this paper, we make use of the so-called statistical inversion approach for the solution of an inverse problem that involves the identification of both local thermal diffusivity and local source term.

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