

Processing of temperature field in chemical microreactors with infrared thermography

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Abstract

This work is devoted to the analysis of temperature fields related to chemical microfluidic reactors. The heat transport around and inside a microchannel is both convective and diffusive with spatial distribution of source terms and strong conductive effects in the channel surrounding. It is shown that Infrared thermography and processing methods of the temperature frames allow to estimate fields for the chemical engineers, such as the heating source distribution of the chemical reaction along the channel. A validation experiment of a temperature field processing method is proposed with Joule effect and an example with a chemical reaction is provided.

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