Identification of boiling nucleation sites by non-orthogonal empirical functions (NEF) analysis of thermographic data

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Abstract

The new method of analysis by non-orthogonal empirical functions (NEFs) is applied to experimental data for the spatio-temporal variations in wall temperature during nucleate boiling. It is shown that the method can successfully identify the positions and patterns of activity at individual members of a large group of nucleation sites. Statistical methods are developed for comparing data of this sort with numerical simulations.