

Segmentation of Gray Scale Images of Dropwise Condensation on Textured Surfaces

Authors : Helene Martin, Solmaz Boroomandi Barati, Jean-Charles Pinoli, Stephane Valette, Yann Gavet

Abstract : In the present work we developed an image processing algorithm to measure water droplets characteristics during dropwise condensation on pillared surfaces. The main problem in this process is the similarity between shape and size of water droplets and the pillars. The developed method divides droplets into four main groups based on their size and applies the corresponding algorithm to segment each group. These algorithms generate binary images of droplets based on both their geometrical and intensity properties. The information related to droplets evolution during time including mean radius and drops number per unit area are then extracted from the binary images. The developed image processing algorithm is verified using manual detection and applied to two different sets of images corresponding to two kinds of pillared surfaces.

Keywords : dropwise condensation, textured surface, image processing, watershed

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