

Videogrametry in Fluidized Bed Reactors

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Experiments were put on identification and evaluation of two phase gas-solid flow pattern in fluidized bed models with the use of videogrametry. Different fluidization columns with transparent walls were used. The main task was to develop method for evaluation of the homogeneity of the fluidized bed, based on image analysis. Various types of flow regimes were recorded with high speed CCD video camera, and frame sequences were put under digital image analysis. Dynamics of homogeneity changes have been expressed as change of grey level value of the image. Analyzing brightness level of each pixel of each image in the frame sequence, gives the grey level fluctuation function. It turned out that each two phase flow regime has its original grey level fluctuation pattern. The digital imaging of fluidization phenomena – videogrametry – provides non-invasive measurement tool for recognition of two phase flow structure, and evaluation of many features of fluidized bed reactor.

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