

Application of Neural Networks to Predict Changing the Diameters of Bubbles in Pool Boiling Distilled Water

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Abstract : In this research, the capability of neural networks in modeling and learning complicated and nonlinear relations has been used to develop a model for the prediction of changes in the diameter of bubbles in pool boiling distilled water. The input parameters used in the development of this network include element temperature, heat flux, and retention time of bubbles. The test data obtained from the experiment of the pool boiling of distilled water, and the measurement of the bubbles form on the cylindrical element. The model was developed based on training algorithm, which is typologically of back-propagation type. Considering the correlation coefficient obtained from this model is 0.9633. This shows that this model can be trusted for the simulation and modeling of the size of bubble and thermal transfer of boiling.

Keywords : bubble diameter, heat flux, neural network, training algorithm

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