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**Applicability of connectionist methods to predict thermal resistance of pulsating heat pipes with ethanol by using neural networks**
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**Abstract**
Pulsating heat pipes (PHPs) are compact and efficient devices in heat transfer which are applicable for several purposes. The thermal resistance of PHPs depends on several parameters. In the present study, four models including multilayer perceptron (MLP), radial bias function (RBF), conjugated hybrid of particle swarm optimization and adaptive neuro-fuzzy inference system (CHPSO ANFIS) are applied to predict the thermal resistance of pulsating heat pipes filled with ethanol. The obtained results indicated that the radial bias function (RBF) model had the highest accuracy among the applied models and can predict the thermal resistance of the PHPs precisely. The R-squared and root mean squared error (RMSE) values for this model were 0.9892 and 0.0650, respectively. © 2018 Elsevier Ltd

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