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Articles

Development of multilayer perceptron artificial neural network (MLP-ANN) and least square support vector machine (LSSVM) models to predict Nusselt number and pressure drop of TiO_2/water nanofluid flows through non-straight pathways

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In this st del and Least Square S rmal performa ht pathways. There di structed and used. St .0 to 2.0% were pre hancement of heat t in system.

Volume concentration of nanofluid, Prandtl number (ranging from 4.82 to 9.11) and Helical number (106.80 to 1282.87) were introduced to the developed models to obtain Nusselt number (9.89 to 53.30) and pressure drop (291.35 to 18784 kPa) as the output data of the models. According to the output results of developed models, MLP-ANN model was able to predict both Nusselt number and pressure drop of nanofluid flow more precisely in comparison to LSSVM model. The developed MLP model of this study exceeded LSSVM model to high correlation coefficient value of 0.97.