

PREDICTION OF THE PERFORMANCE FOR ALPHA-TYPE STIRLING ENGINE THROUGH ARTIFICIAL NEURAL NETWORK TECHNIQUE

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Abstract

This study involves the application of artificial neural network (ANN) as an intelligent approach to predict the output power of one alpha-type Stirling engine under some operating conditions. One ANN model had been developed based on experimental data from published literature. Output power as one of the performance indicators, was chosen as a response to input parameters, heat source temperature, engine speed and charging pressure. A multi-layer feed-forward network with a back-propagation algorithm had been proposed for such a prediction. The ANN model had been proven to be desirable in accuracy for predicting the output power by comparing the model results with experimental ones under the same operating conditions. This work would provide an effective approach based on ANN technique for solving complex design problems either with linear or nonlinear nature.

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