

Review of forced convection nanofluids through corrugated facing step

This paper presented the recent development of heat transfer enhancement through facing step and corrugated channels. Numerical simulation findings of the convective heat transfer with and without nanofluids have been investigated. The experimental trials to augment heat transfer in the facing step and corrugated channels by using conventional fluids and nanofluids are reported. Both of the laminar and turbulent flows through facing step and corrugated channels are introduced. There were good agreements among numerical and experimental studies to augment heat transfer. The significant applications of the engineering field have led many investigators to use nanofluid in the heat exchanger for heat transfer augmentation. New design of the corrugated facing step channel to enhance heat transfer is being proposed. The utilization of nanofluids will be useful in the new channel to enhance the heat transfer numerically and experimentally. The heat transfer enhancement was estimated up to 60% when using nanofluid in the facing step channel. Regression equations can correlate relationships among the responses and the input parameters. It is needed to compare the dimensions of the new channels that includes height of step, height of corrugated and shape of corrugated that might give an optimum heat transfer enhancement with a slight friction factor.