

Numerical study of nanofluids effect on heat transfer and pressure drop of triangular microchannel heat sink

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Abstract : The present work deals with study the heat transfer and pressure drop of the triangular microchannel heat sink(MCHS), along different working fluids. The nanofluids such as CuO and Al₂O₃ are used as coolants to enhance the performance of triangular microchannel heat sinks. The modeling and analysis were done with the help of Solid works. The heat transfer performance of the triangular fins were studied with the Reynolds number varying from 96 - 460. The numerical result shows that the triangular oblique finned microchannel heat sink has large heat transfer rate of 12.9 % for varying Reynolds number when compared to a straight channel. Similarly, the pressure drop also increases with 38.2% for triangular microchannel flowing nanofluid. Consequently triangular microchannel is enhancing the heat removed in electronics chip cooling.

Keywords : Microchannel, Triangular, Nanofluids, Heat transfer, Pressure drop.

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