عنوان مقاله:

Numerical Analysis of Fully Developed Flow and Heat Transfer in Channels with Periodically Grooved Parts (TECHNICAL NOTE)

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خلاصه مقاله:

To obtain a higher heat transfer in the low Reynolds number flows, wavy channels are often employed in myriad engineering applications. In this study, the geometry of grooves shapes is parameterized by means of four angles. By changing these parameters new geometries are generated and numerical simulations are carried out for internal fully developed flow and heat transfer. Results are compared with those of rectangular grooved channel. Two different Prandtl numbers, i.e. 0.7 and 5, were investigated while Reynolds number varies from 50 to 300. An element-based finite volume method (EBFVM) is used to discretize the governing equations. Results reveal that that both heat transfer performance and average Nusselt number of rectangular grooved channel were higher than those of other geometries.

کلمات کلیدی:

Wavy Channel, Fully Developed Flow, Grooves Shapes, Thermal Performances

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