

عنوان مقاله:

Numerical modeling of flow and heat transfer through converging/diverging channels with applications in oil and gas industries

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خلاصه مقاله:

The efficient transportation of oil and gas through pipelines is crucial for the energy industry. Converging and diverging channels are commonly used in pipeline designs to regulate the flow of fluids for the various goals. These components are critical for ensuring the smooth flow of fluids and minimizing pressure losses. However, the complex geometry of these components can make their analysis challenging. The aim of this study is to solve and analyze the flow and heat transfer of a converging/diverging channel with the multiple slips effect. Governing equations are reduced into highly non-linear ordinary differential equations. The resulting equations have been solved numerically by bvp4c (in Matlab package) for some values of the emerged parameters. Graphical results are presented to investigate the influence of the angles of the channel and Reynolds number on the velocity and temperature profiles. The results can be significant and useful in real applications of various industries.

کلمات کلیدی:

converging/diverging channel, Oil and gas industries, numerical modeling

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