30th October, 2020

To

The Editor,

Facta Universitatis, Series: Mechanical Engineering

Subject: Submission of a research paper entitled "Effects of Rotation on Unsteady Fluid Flow and Forced Convection in a Rotating Curved Square Duct with Small Curvature."

Authors: Mohammad Sanjeed Hasan, Ratan Kumar Chanda, Rabindra Nath Mondal, Giulio Lorenzini

Dear Editor,

I am sending an electronic version of our original article on the above-mentioned title for your kind consideration of its suitability for possible publication as a regular article in your reputed journal "Facta Universitatis, Series: Mechanical Engineering". The understanding of the flow transitions as well as the vortex structure and heat transfer through a rotating duct is important for different engineering applications. The available literature improved the understanding the transition of fluid flow and heat transfer through a rotating duct of small curvature. However, the comprehensive knowledge of the transition of fluid flow and heat transfer through a rotating curved duct for different Taylor number with small curvature is still unknown. This numerical study aims to perform transition of fluid flow characterization and heat transfer through a rotating curved duct with small curvature.

A list of the specific major contributions reported here:

1. This study revealed a computational structure for rotating curved duct flow;
2. The secondary flow results represent good agreement with the experimental data;
3. Transitional characteristics have been investigated and illustrated with a wide range of Taylor numbers for negative rotation;
4. Vortex structures in the unsteady flow characteristics have been also revealed;
5. Heat transfer effects through the ducts are comprehensively explored;

6. Influence on Coriolis forces at the outer wall and inner wall for the velocity profiles such as axial and secondary flow impact the overall heat transfer for both positive and negative rotation.

The present study narrates the transitional behavior of the fluid flow and heat transfer for a rotating curved duct with small curvature. The comprehensive analysis illustrated the formation of Dean vortices and analyzed the corresponding heat transfer. This study along with some experimental measurement will enhance the understanding of the convective heat transfer for small curvature domain.

It will be highly appreciated if you kindly take necessary action in favor of its publication in your reputed journal. Thanking you in advance for your cooperation.

With best regards,

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