Review of: "Numerical Study of Thermal Performance on Fin and Tube Heat Exchanger with Flat Rectangular and Sinusoidal Winglet Vortex Generators"

Hayder Hasan

Potential competing interests: No potential competing interests to declare.

Qieos

Numerical Study of Thermal Performance on Fin and Tube Heat Exchanger with Flat Rectangular and Sinusoidal Winglet Vortex Generators

Comments

Abstract

1. State briefly more details about the case of the tube and results you found, and what the outcomes are.

Nomenclature

1. Add a table for all parameters with their relevant units.

1.Introduction

1. Make sure of the writing style, and move the word "introduction" to the next page.
2. The aim of the study should be moved to the last paragraph in the introduction, and also state what kind of numerical method was used.
3. "In this paper, the Reynolds number range is selected from about 400 to 1100, and the attack angle is 25º" - state why you have used these properties? Is there any good reason for using a small Re?... In most cases, the turbulent flow is used, which is more efficient.

2.Model Description

1. Figures 1 and 2: No dimensions are given? Also, it is not clear how you fix these vortex generators to the tube as they look floating inside the tube.
2. Fig 1: Not clear. Is it the artery itself? Where is the stenosed artery? Also, the symbols are not defined.
3. Also, no dimensions are given?
4. Add a full section for the boundary conditions and state what they are.

2.1. Governing Equations

1- All numbers for the equations and references for all equations and quantities.

2-" The inlet velocity considered becomes very small. The various transport equations such as continuity, momentum, energy equations are implemented to solve the complex flow structure near the wall boundary" - explain this sentence clearly.

3-"Turbulence viscous model K-ϵ (RNG model) is selected because it has the capabilities of capturing the flow separation near the wall boundary" - Is it laminar or turbulent flow that is used?? You used Re up to 1100 and then a turbulent solver? How do you justify this?

4-As Ansys 19 was used, it is good to add figures showing the meshes which are available from Ansys.

5-This section needs real improvements regarding boundary conditions and dimensions of the real domain used in the calculations, and what are 5H and 30H here?

3. Results and Discussion

1-Fig 6: Why does the sinusoidal vortex generator show the highest Nusselt number? Give a reason for that.

2-Give the definition of the London area goodness factor (j / f factor). Why was it used? Usually, the thermal performance factor is commonly used in similar studies?

3-I would refer the authors to read this paper which shows all details.

Thermal performance augmentation of fin-and-tube heat exchangers using rectangular winglet vortex generators having circular punched holes

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