Tentative Outline

Nanofluid applications in engineering: Modeling and simulations

Guest Editors: Dr. Qasem M. Al-Mdallal & Dr. Mohsen Sheikholeslami

Aims & Scope:

Nanofluids are a new type of heat transfer fluid containing nanoparticles in the size range under 100 nm that are uniformly and stably suspended in a base fluid. Energy transportation of the nanofluid is affected by the properties and dimension of nanoparticles as well as the solid volume fraction. In numerical studies, various models can be utilized to investigate the nanofluid hydrothermal behavior. In this special issue, new computational fluid dynamic (CFD) approaches are presented for predicting nanofluid behavior. Various applications of nanofluid are presented in different field of science such as: mechanical, aerospace, chemical, civil and energy engineering. Papers focus on development of new numerical approaches to show the applications of nanofluids.

Subtopics:

The subtopics to be covered within this issue are listed below:

- ➤ New numerical scheme with application to nanofluid
- ➤ Numerical simulation of nanofluid turbulence flow
- ➤ Modeling of multi-physical effects on nanofluid behavior (Magnetohydrodynamic, Electrohydrodynamic, acoustic, non-Newtonian, …)
- ➤ Benchmark solutions for nanofluid flow and heat transfer
- ➤ Simulation of Nano-encapsulated phase change material (NEPCM) for melting and solidification process
- ➤ Nanofluid condensation heat transfer
- ➤ Boiling heat transfer enhancement with nanofluids

Schedule:

- ✧ Manuscript submission deadline: March 1, 2021
- ✧ Peer Review Due: May 1, 2021
- ✧ Revision Due: July 1, 2021
- ✧ Final manuscripts due: September 15, 2021

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