XIAMEN UNIVERSITY MALAYSIA
厦門大學馬來西亞分校

Research Talk

Mathematical modeling and simulation of heat and mass transfer due to nanofluid flow over open surfaces and inside closed geometries

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Feroz Ahmed Soomro

Assistant Professor

Xiamen University Malaysia

ferozahmed.soomro@xmu.edu.my

Research interests: numerical simulation of heat and mass transfer problems in both open and closed geometries and data-driven techniques for fluid mechanics and heat transfer.

Speaker Introduction

Dr. Feroz Ahmed Soomro is an Assistant Professor at the School of Mathematics and Physics in Xiamen University Malaysia. Dr. Feroz Ahmed Soomro was graduated from Nanjing University in China in 2018.

Abstract

The process of heat and mass transfer due to the flow of nanofluid over open surfaces or inside closed geometries is when modelled into the mathematical framework give rise to the coupled nonlinear partial differential equations (PDE), including conservation of mass, momentum, energy, and concentration, along with the boundary conditions. The analytical solution of such problems is not possible in most of the cases. The alternative method is the numerical approach. There are number of numerical methods available in the literature which are extensively used in solving heat and mass transfer problems. Most commonly used numerical methods are Finite Volume Method, Finite Element Method, Lattice Boltzmann Method, etc. The challenges of numerical approach depend on the severity of nonlinearity of differential equations and the complexity of boundary conditions. The computational time and processing capacity are the parameters of interest. Hence, the study of such problems is crucial for the optimal results.