Special Issue

Numerical Analysis of Magnetohydrodynamic Flows

Message from the Guest Editor

Magnetohydrodynamics (MHD) is a field of study combined by the fluid mechanics and electromagnetism. The flow of conducting materials are substantially influenced by the electromagnetic force. This mechanism has been widely applied to various industries. Related to these processes, it is necessary to investigate fundamental MHD flows such as natural convection, free-surface, rotational flows, as well as the flows in ducts or pipes. Nowadays, due to the developments of both the computational resources and its techniques, more complex MHD flows are now being investigated through numerical analyses. This Special Issue focuses on numerical techniques for analysing complex MHD flows, for instance, 1) the method of how to solve induction equations expressed by the magnetic field or the magnetic vector potential, 2) free-surface MHD flows, 3) stability analysis for MHD flows, 4) MHD flows caused by alternating magnetic fields (moving, rotating or oscillating magnetic field), and 5) high Hartmann number flows.

Guest Editor

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