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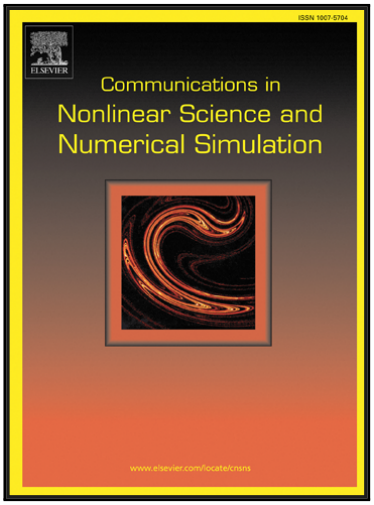

Buoyancy effects on the 3D MHD stagnation-point flow of a Newtonian fluid

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Highlights

- The steady MHD 3D mixed convection stagnation-point flow of an electrically conducting, incompressible Newtonian fluid is studied.
- If the induced magnetic field is negligible, then the motion is examined if the external magnetic field has the direction of the axes.
- The solution depends on the Hartmann number M, the buoyancy parameter λ and the Prandtl number Pr.
- Dual solutions exist for some values of the parameters.
- The external magnetic field (the buoyancy forces) tends to prevent (tend to favor) the occurence of the reverse flow.
- The origin is classified as nodal or saddle point of attachment or separation.

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