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MHD phase change heat transfer in an inclined enclosure: Effect of a magnetic field and cavity inclination
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Abstract
The MHD phase change heat transfer of a phase change substance in the presence of a uniform magnetic field is theoretically studied in a cavity. A fixed grid method associated with the enthalpy–porosity method is utilized. The governing equations are transformed into a non-dimensional form and solved using the finite element method. The impacts of the crucial parameters such as the Hartmann number and the inclination angle on the phase change process are investigated. It is found that any increase in Hartmann number and the inclination angle of the cavity leads to a decrease in the rate of the melting process. © 2017 Taylor & Francis.

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