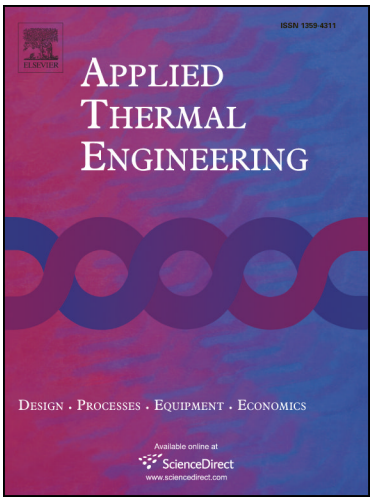

Research Paper

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Radiative, conductive and laminar convective coupled heat transfer analysis of molten salts based on finite element method

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Abstract：

Radiative transfer is the dominant mode of heat transfer at high temperature for an absorbing-scattering media. Due to the complex solving of radiative transfer equation, radiative transfer is usually omitted in conventional heat transfer analysis of molten salt. In this study, the radiative, conductive and laminar convective coupled heat transfer of molten salts was numerically analyzed by the codes compiled based on finite element method (FEM) coupled with commercial Fluent software. The effects of radiative transfer on temperature distribution of molten salts were analyzed. Besides, the effects of scattering albedo, refractive index and fluid inlet velocity on temperature distribution of molten salts were also investigated. The numerical results indicated that the maximum elevated temperature deviation can reach up to 47.4%

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