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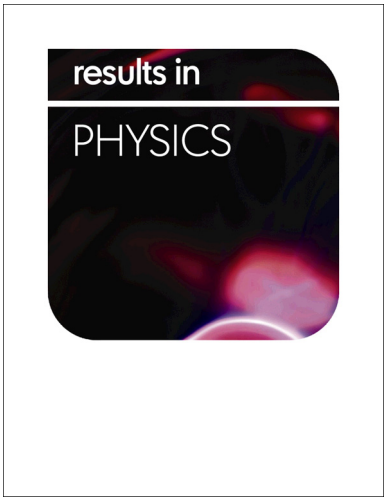

Numerical study for melting heat transfer and homogeneous-heterogeneous reactions in flow involving Carbon nanotubes

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Numerical study for melting heat transfer and homogeneous-heterogeneous reactions in flow involving Carbon nanotubes

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Abstract: Present work concentrates on melting heat transfer in three-dimensional flow of nanofluid over an impermeable stretchable surface. Analysis is made in presence of porous medium and homogenous-hetetogenous reactions. Single and multi-wall CNTs (carbon nanotubes) are considered. Water is chosen as basefluid. Adequate transformations yield the non-linear ordinary differential systems. Solution of emerging problems is obtained using shooting method. Impacts of influential variables on velocity and temperature are discussed graphically. Skin friction coefficient and Nusselt number are numerically discussed. The results for MWCNTs and SWCNTs are compared and examined.

Keywords: Porous medium; Melting heat transfer; Carbon nanotubes; Homogeneous-heterogeneous reactions.

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