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THERMAL SCIENCE

International Scientific Journal

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RADIATION AND CHEMICAL REACTION EFFECTS ON ISOTHERMAL VERTICAL OSCILLATING PLATE WITH VARIABLE MASS DIFFUSION

ABSTRACT

The unsteady flow of a viscous incompressible flow past an infinite isothermal vertical oscillating plate, in the presence of thermal radiation and homogeneous chemical reaction of first order has been studied. The fluid considered here is a gray, absorbing-emitting radiation but a non-scattering medium. The plate temperature is raised to T_w and the concentration level near the plate is raised linearly with respect to time. An exact solution to the dimensionless governing equations has been obtained by the Laplace transform method, when the plate is oscillating harmonically in its own plane. The effects of velocity, temperature, and concentration are studied for different physical parameters like phase angle, radiation parameter, chemical reaction parameter, Schmidt number, thermal Grashof number, mass Grashof number, and time are studied graphically. It is observed that the velocity increases with decreasing phase angle wt.

KEYWORDS

[chemical reaction](#), [radiation](#), [vertical plate](#), [heat and mass transfer](#)

PAPER SUBMITTED: 2007-10-27

PAPER REVISED: 2008-06-21

PAPER ACCEPTED: 2008-09-01

DOI REFERENCE: [TSCI0902155M](#)

CITATION EXPORT: [view in browser](#) or [download as text file](#)

THERMAL SCIENCE YEAR 2009, VOLUME [13](#), ISSUE [2](#), PAGES [155 - 162]

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