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**Study of flow past an exponentially accelerated isothermal vertical plate in the presence of chemical reaction.** (English) [Zbl 1299.80009](#)

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Summary: Theoretical study of unsteady flow past an exponentially accelerated infinite isothermal vertical plate with variable mass diffusion has been presented in the presence of homogeneous chemical reaction of first order. The plate temperature is raised to  $T_w$  and species concentration level near the plate is made to rise linearly with time. The dimensionless governing equations are solved using Laplace-transform technique. The velocity profiles are studied for different physical parameters like chemical reaction parameter, thermal Grashof number, mass Grashof number,  $a$  and time. It is observed that the velocity increases with increasing values of  $a$  or  $t$ . But the trend is just reversed with respect to  $K$ .

**MSC:**

80A20 Heat and mass transfer, heat flow (MSC2010)

80A32 Chemically reacting flows

80M99 Basic methods in thermodynamics and heat transfer

**Keywords:**

exponential; heat transfer; mass diffusion

**Full Text:** [DOI](#)