Stability of MHD unsteady nanofluid flow through expanding or contracting channel with porous walls / M. K. Rahman, Md. S. Alam, M A. H. Khan.

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Abstrak

ABSTRACT
The objective of the present study is to investigate the influence of external magnetic field on unsteady incompressible flow of water based nanofluid through a successively expanding or contracting channel with porous walls. the basic governing equations with boundary conditions are non-dimensionalized using appropriate transformation to ordinary differential equations, which are then solved using power series with the help of Hermite-Padè approximation method. the instability of the flow is shown using bifurcation graph and the dominating singularity behavior numerically. the regular effects of the different governing physical parameters specifically Hartmann number, volume friction of nanoparticles, non-dimensional shear stress and permeation Reynolds number on velocity profiles are depicted graphically.