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A STUDY ON MHD JEFFREY FLUID FLOW PAST A VERTICAL POROUS PLATE WITH MULTIPLE BOUNDARIES UNDER THE EFFECT OF CHEMICAL REACTION

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Abstract: In non-Newtonian fluid flow Jeffrey fluid is the one which describes stress relaxation very well. This paper is mainly focused on analytical investigation of unsteady heat and mass transfer rate through porous medium in the presence of magnetic field along with radiation/absorption, heat generation/ absorption and homogeneous chemical reaction effects. The coupled linear partial differential equations are turned to ordinary equations by super imposing solutions with steady and time dependent transient part. Finally, the set of ordinary differential equations are solved with a perturbation method to meet the inadequacy of boundary condition. The effect of different parameters on the flow is described with the help of graphs and tables. This investigation is the fluctuation of velocity appears near the plate due to the presence of sink and presences of elastic element as well heat source reduces the skin friction. Impact of Jeffery parameter leads to decrease the fluid velocity. The heavier species with low conductivity reduces the flow within the boundary layer.

Keywords and Phrases: Porous plate, Thermal radiation, Chemical reaction, Heat and mass transfer, Jeffery fluid, thermal radiation, Grashof Number, MHD.

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