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THERMAL DIFFUSION AND RADIATION ABSORPTION IMPACTS ON CHEMICALLY REACTIVE AND RADIATIVE NANOFLUID FLOW PAST AN EXPONENTIALLY ACCELERATED VERTICAL POROUS PLATE

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Abstract: The role of thermal diffusion (Soret) and radiation-absorption influences on the unsteady MHD boundary layer flow for Silver (Ag) and Copper (Cu) water-based nanofluid over an accelerated exponentially vertical porous plate has been investigated. The varying temperature and concentration at the plate are also considered. The governing equations of the flow are numerically resolved to employ the finite-difference system of the implicit Crank-Nicolson method. Fluid velocity, fluid temperature, and species concentration were all plotted for meaningful physical parameters. For both nanofluids, non-dimensional metrics such as the friction factor, Nusselt number, and Sherwood number at the surface are tabulated. The data obtained from the literature provide strong validation for the findings. The finding of the study is that both nanofluids' velocities rise with increases in Soret and radiation absorption parameters. For increased values of Soret and radiation absorption parameters, the friction factor and Nusselt number increase. Sherwood numbers drop for the Soret parameter and rise for the radiation absorption.