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MHD free forced convection from a horizontal cylinder with suction and blowing

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Abstract: The effect of suction and blowing on convection heat transfer from a horizontal cylinder in cross magnetohydrodynamic flow is investigated. Local nonsimilarity technique is used to solve numerically the appropriate transformed nonlinear partial differential equations. A coordinate perturbation method is also used for double checking the solution. The results are presented in terms of the local shear stress and local Nusselt number. Blowing decreases Nusselt number and suction increases it both in free and forced convection flows, wall shear stress in free and forced convection decreases with blowing, but suction increases it in forced convection and decreases it in free convection.