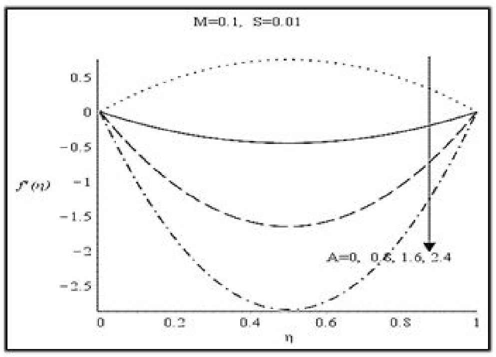
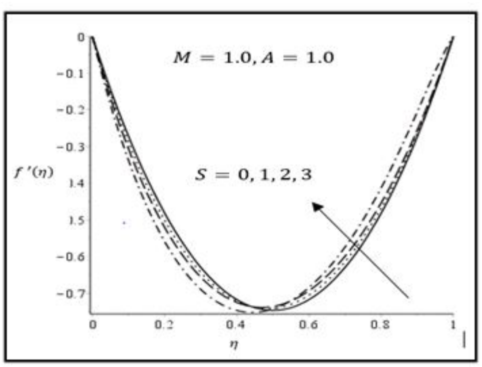
inversely proportional to $Pr$ in Figure 4(a). The low values of $Pr$ are related to high viscous fluids with high thermal conductivity and high viscosity $Pr$, which corresponds to low viscous liquid. Figure 4(b) indicates that inverse relation holds for $Ec$ number as in Figure 3(b). In Figure 5, it has been shown that $\theta(\eta)$ increases with increasing $\chi$.

**Injection Case ($A < 0$):** Figures 6(a),6(b) to Figure 9 show the effects of physical parameters on the radial velocity and temperature distribution when $A < 0$. An inverse relationship is observed in physical properties on axial velocity for suction and injection cases. On the other hand, the temperature distribution figures remain the same as in the suction case.

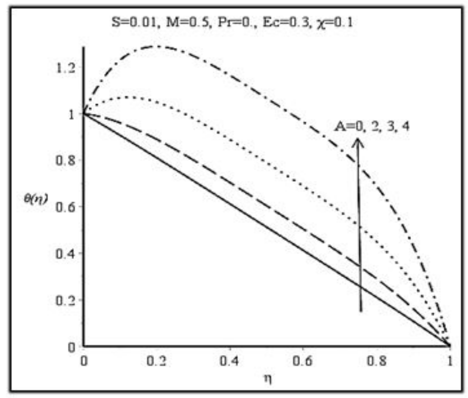



(a)

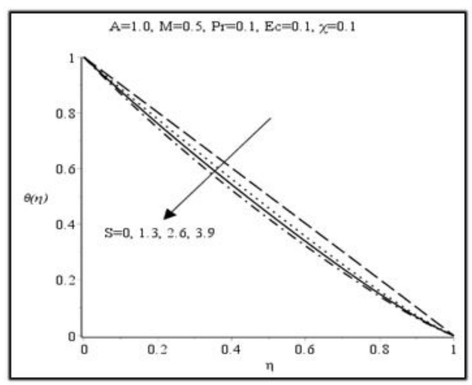



(b)

Figure 2: (a)Effects of $A$ on radial velocity profiles (b)Effects of $S$ on radial velocity

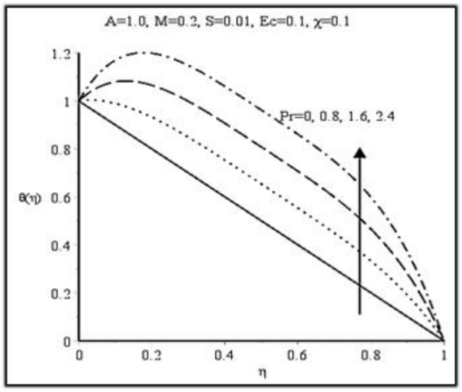



(a)

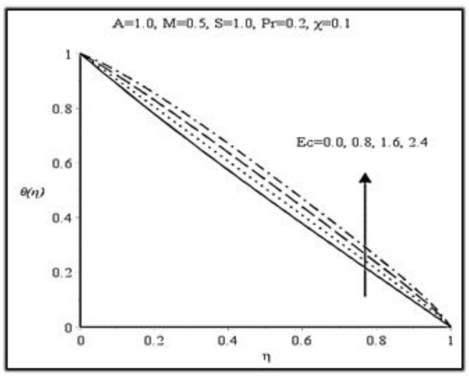



(b)

Figure 3: (a)Effects of $A$ on temperature profile, (b) Effects of $S$ on temperature profile for $A = 1.0$




(a)




(b)

Figure 4: (a)Effects of $Pr$ on temperature profile for $A = 1.0$, (b)Effects of $Ec$ on temperature profile for $A = 1.0$.

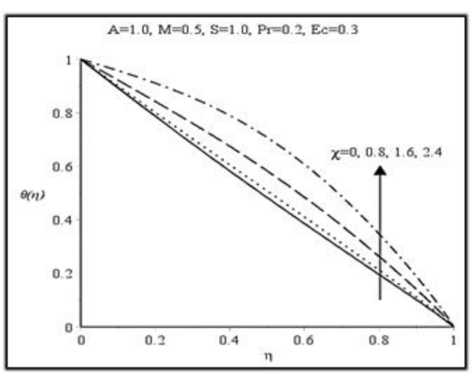
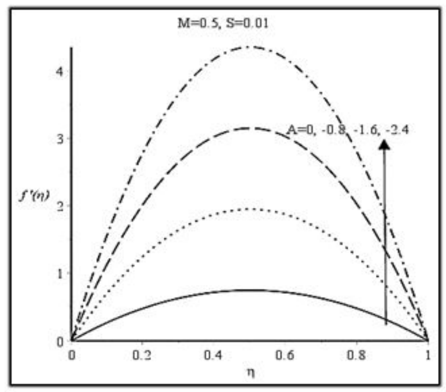
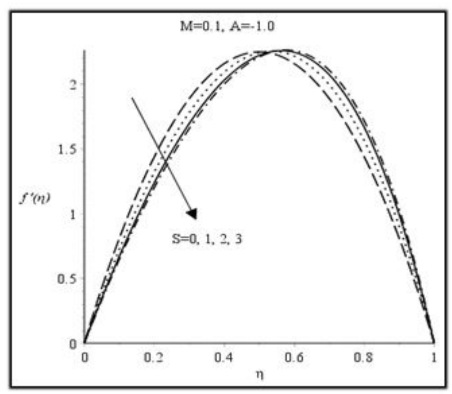



Figure 5: Effects of $\chi$ on temperature profile for $A = 1.0$

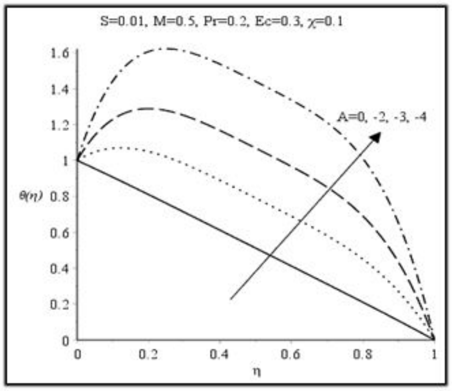



(a)

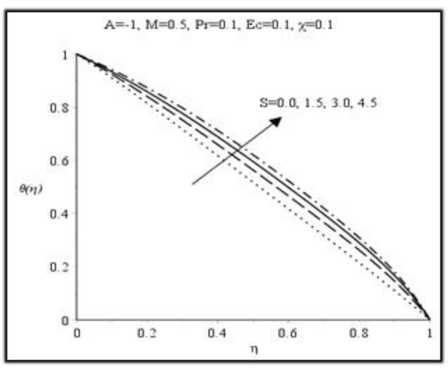



(b)

Figure 6: (a)Effects of negative values of $A$ on the radial velocity profiles, (b)Effects of varying $S$ on the radial velocity for $A = -1.0$.

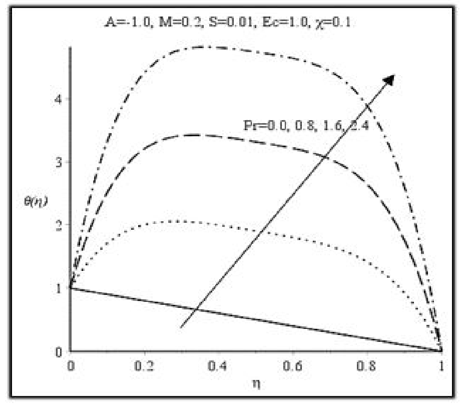



(a)

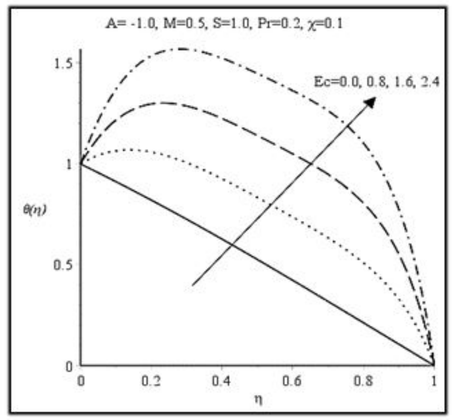



(b)

Figure 7: (a) Effects of the negative values of $A$ on the temperature profile, (b)Effects of varying $S$ on the temperature profile for $A = -1.0$.




(a)




(b)

Figure 8: (a)Effects of varying $Pr$ on the temperature profile for $A = -1.0$,(b)Effects of varying $Ec$ on the temperature profile for $A = -1.0$

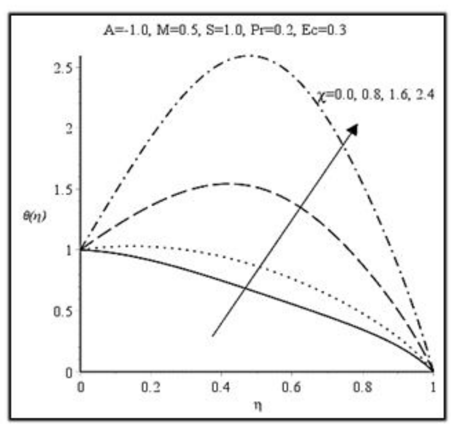



Figure 9: Effects of $\chi$ on temperature profile for $A = -1.0$

# 7 Conclusion

The basic goal of this work is to obtain solutions to the governing equations, which model the movement of MHD fluid in a channel with one permeable wall under the effects of the heat transfer, by DTM. This method evaluates the coefficients of Taylor series without differentiating the function and reduces the cost of computation. In $[0, 1]$ interval, reliable results are achieved by few terms in the series. The computations of the velocity and the temperature distribution are obtained by using the symbolic computation software, Maple. It is worth to note here that we also easily solve similar flow problems by using DTM.

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