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Dual solutions of an unsteady flow, heat and mass transfer of an electrically conducting fluid over a shrinking sheet in the presence of radiation and viscous dissipation

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## Highlights

- Analytical solutions for the boundary layer flow of a viscous incompressible fluid generated by a shrinking sheet under the influence of a transverse magnetic field in the presence of viscous dissipation and thermal radiation are obtained using Homotopy Analysis Method.
- Dual solutions are found to exist and the associated critical values of the flow parameters for which dual solutions exist are calculated.
- Surface drag coefficient of the stable solution is enhanced for increasing values of magnetic parameter and suction parameter.
- Thermal radiation parameter and Eckert number enhance rate of heat transfer in the case of stable solution.
- Mass transfer rate of the stable solution is noticed to be a decreasing function of Schmidt number and chemical reaction parameter.

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