Abstract

The paper presents numerical investigation of effects of pressure gradient and temperature gradient on demixing of a binary mixture of thermally and electrically conducting incompressible viscous fluids set in motion due to the rotation of a heated sphere in presence of a uniform magnetic field applied in a direction parallel to the axis of rotation. The boundary layer equations governing the motion, temperature and concentration distribution are solved numerically with MATLAB's built – in solver bvp4c. The numerical data is represented graphically and the effects of various parameters on demixing of the binary fluid mixture are discussed.

References

Effect of Axial Magnetic Field on Demixing of a Binary Fluid Mixture due to the Rotation of a Heated Sphere


Index Terms

Computer Science  Applied Sciences
Keywords

- pressure gradient
- temperature gradient
- magnetic field
- binary fluid mixture