**Analysis of Mixed convective bottom heated square cavity using Energy streamlines**

**V. Narayana**

National Institute of Technology Warangal, India

*vnarayana.wgl@gmail.com*

**H.P Rani**

Department of Mathematics, National Institute of Technology Warangal, India.

**Y. Rameshwar**

Department of Mathematics, College of Engineering, Osmania University, Hyderabad, India.

**ABSTRACT**

Analysis of two dimensional natural convective lid driven cavity flow is carried out numerically. The top wall is assumed to slide in its own plane at a constant speed. Isothermal temperature is maintained at horizontal walls in which the bottom wall is assumed to be at a higher temperature than the top wall. Governing equations of this problem, expressed in dimensionless form are solved by using the finite volume method. Numerical results are computed for the control parameters arising in the system, namely, the Reynolds number (*Re*) and Richardson number (*Ri*) in the range of 100 ≤ *Re* ≤ 400 and 0.001 ≤ *Ri* ≤ 10.The contours of isotherms, streamlines and energy streamlines are used to visualize the flow and thermal characteristics.

***Keywords****: Mixed convection; Reynolds number; Richardson number; Field synergy.*