

Lee, T. S.**Numerical experiments with laminar fluid convection between concentric and eccentric heated rotating cylinders.** (English) [Zbl 0557.76101](#)[Numer. Heat Transfer 7, 77-87 \(1984\).](#)

Summary: A numerical investigation is carried out to determine the temperature and flow patterns of a fluid bounded by two horizontal isothermal eccentric cylinders. The inner cylinder is assumed to be at a higher temperature and rotating. The numerical method involves a mesh transformation technique coupled with the introduction of "false transient" parameters for the steady-state solution of the problem. The parameters studied were for a Prandtl number of 0.7 and a radius ratio of 2.6 at different Rayleigh numbers, Reynolds numbers, and eccentricities. The results show that the mean Nusselt number increases with Rayleigh number. For a fixed Rayleigh number, when the inner cylinder is made to rotate, the mean Nusselt number decreases throughout the flow.

MSC:[76Rxx](#) Diffusion and convection[76-04](#) Software, source code, etc. for problems pertaining to fluid mechanicsCited in **1** Document**Keywords:**[numerical experiment](#); [temperature and flow patterns](#); [two horizontal isothermal eccentric cylinders](#); [mesh transformation technique](#)**Full Text:** [DOI](#)