Abstract Submitted for the DFD07 Meeting of The American Physical Society

Natural Convection \mathbf{in} Interconnected Systems: PIV Measurements¹ RAMON RAMIREZ-TIJERINA, CARLOS IVAN RIVERA-SOLORIO, ALEJANDRO GARCIA-CUELLAR, ITESM Campus Monterrey — The fluid dynamics in a configuration of interconnected systems was experimentally studied. The configuration consists of one system where the fluid is heated with a power source and another system where the heat is dissipated. The fluid circulates between the two systems due to the buoyancy forces presented. This mechanics of natural convection is important due to their application in the cooling of power oil transformer, electrical devices and electronic components. Particle Image Velocimetry (PIV) equipment was employed to obtain measurements of fluid velocities. The effect in the flow patterns due to the variation of the configuration and conditions of the interconnected systems are investigated. Conclusions obtained from the analysis of the experimental data are presented.

¹This work was supported by the Research Chair of Solar Energy CAT045. The authors would also like to express their gratitude to Sergio Uribe and the Danfoss Company.

Ramon Ramirez-Tijerina ITESM Campus Monterrey

Date submitted: 07 Aug 2007

Electronic form version 1.4