3D pattern flow in a right-angled triangular cavity[1] RAFAEL CHAVEZ, FRANCISCO J. SOLORIO, Department of Thermofluids, Engineering School, UNAM — Most numerical studies in triangular cavities had been carried out considering the flow as two-dimensional. In the last years some numerical studies have been made to take in account the three-dimensional behavior, but there is a lack in experimental work in the field of right-angled triangular cavities. This work is an effort to fill this lack. Particle image velocimetry (PIV) is used to study the flow pattern into a cavity with the inclined wall cooled, the vertical wall adiabatic and the horizontal bottom wall heated. Four Rayleigh numbers are considered: 5×104^3, 1×10^4, 5×10^4 and 1×10^5, and glycerin is used as working fluid. For the smallest Rayleigh number (5×104^3) the flow is two-dimensional. As the Rayleigh number is increased, the flow evolves into a more complex three-dimensional pattern, with an array of cells whose rotation axes are normal to the vertical adiabatic wall. It is found that the number of cells depends on the Rayleigh number.

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