

Experimental observation of the steady - oscillatory transition in a cubic lid-driven cavity

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Particle image velocimetry is applied to the lid-driven flow in a cube to validate the numerical prediction of steady - oscillatory transition at lower than ever observed Reynolds number. Experimental results agree with the numerical simulation demonstrating large amplitude oscillatory motion overlaying the base quasi-two-dimensional flow in the mid-plane. A good agreement in the values of critical Reynolds number and frequency of the appearing oscillations, as well as similar spatial distributions of the oscillations amplitude are obtained.

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