

Two-dimensional oscillatory Stokes flows between two parallel planes

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Abstract

The eigen solutions of two-dimensional oscillatory Stokes flow between two parallel plane walls are studied, and the behavior of eddy structure is examined as the frequency of oscillation varies. Oscillatory Stokes flows between two planes induced by singularities such as stokeslet and rotlet are obtained in terms of eigen solutions. Transient behavior of unsteady Stokes flow after the impulsive introduction of singularity is briefly discussed.

Keywords: Oscillatory Stokes flow; Eigen solution; Moffatt eddy; Singularity method

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