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Analysis of the Secondary Stationary Flow Around an Oscillating Circular Cylinder

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Abstract : This paper is devoted to the study of a viscous incompressible flow around a circular cylinder performing harmonic oscillations, especially the steady streaming phenomenon. The research methodology is based on the asymptotic explanation method combined with the computational bifurcation analysis. Present studies allow to identify several regimes of the secondary streaming with different flow structures. The results of the research are in good agreement with experimental and numerical simulation data.

Keywords : oscillating cylinder, secondary streaming, flow regimes, asymptotic and bifurcation analysis
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