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Section:

9. Ordinary Differential Equations and Dynamical Systems

1991 MS Classification: 76
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Numerical Study of Bifurcation for Steady Flow in a Diverging Tube

The steady flow in a diverging tube of small aspect ratio is investigated. We obtained the governing non-linear differential equation involving small parameter Re (the flow Reynolds number). Using perturbation technique and computing aid (MAPLE), the solution for the various flow characteristics are obtained and the bifurcation study is performed (Makinde, 1997). The study reveals accurately the Reynolds number at which the separation and reversal in the flow field occur.

Reference: O. D. Makinde, Steady flow in a linearly diverging asymmetrical channel, CAMES 4 (2) (1997), 157-167.