Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

The attractor manifold of the flow past a circular cylinder for $Re = 100$[1] IAGO C. BARBEIRO, JULIO R. MENEGHINI, J.A.P. ARANHA, NDF, Escola Politecnica, University of São Paulo, Brazil — The flow past a circular cylinder in its two-dimensional nonstationary régime is concerned, in the vicinity of $Re = 100$. At this point it shows the behavior of a self-sustained oscillator with a simple attractor, the periodic solution. This study proposes a methodology to build the attractor manifold from one picture of the solution inside the attractor using the spectral structure of the linearized evolution operator (a reduced subset of its eigenspace). The aim is to project the Navier-Stokes equations onto this manifold to obtain a nonlinear reduced model of Galerkin type for the phenomenon. The numerical scheme is based on a Finite Element Method discretization using Taylor-Hood elements and results will be presented at the time of the meeting.

[1]Authors have grants from FINEP-CTPetro, FAPESP and Petrobras.

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Date submitted: 10 Aug 2010 Electronic form version 1.4