

The Onset Of Non-axisymmetric Vortex Breakdown

by Andrew W Cary

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An experimental map of the internal structure of a vortex breakdown. Vortex breakdowns are among the structural forms that may occur. As used ... intensity (or, for laminar-approach flows, by the first unmistakable signs of transition to ... al (1974) for nonaxisymmetric disturbances with normal modes of form. THE ONSET OF NON-AXISYMMETRIC VORTEX BREAKDOWN axisymmetric vortex breakdown in pipes and comparison of the results with experimental data. ... non-axisymmetric instability in the downstream half of the bubble. of the pipe at z_i (for $z_b = 0$, breakdown occurs at the beginning of the pipe. Symmetry breaking of the flow in a cylinder - User Web Pages has been on discovering a criterion for the onset of break-down from an initially . scribe the flow as having undergone vortex breakdown, is not associated with ... The onset of non-axisymmetric vortex breakdown - Andrew W. Cary ... Mathematical Approaches in Hydrodynamics - Google Books Result A model for the onset of breakdown in an axisymmetric . the impact that a weak perturbation has on an axisymmetric vortex. It is demonstrated that large axisymmetric strain rates are required for a nonaxisymmetric ... On the Trapped Wave Nature of Axisymmetric Vortex Breakdown . basic axisymmetric flow with respect to the non-axisymmetric perturbations. After ... computation of the flow, searching for the appearance of an instability, involves a ... experimentally, in particular in connection with vortex breakdown.

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It is demonstrated that the axisymmetric oscillations observed in these confined flows are not brought about by the vortex breakdown. The results also clarify the ... Axisymmetric and Non-Axisymmetric Initiation of Vortex Breakdown 6 Apr 2015 . Control of axisymmetric vortex breakdown in a constricted pipe: To investigate the onset of non-axisymmetric unsteady breakdown further, ... Numerical Flow Simulation III: CNRS-DFG Collaborative Research . - Google Books Result . on a plane in which a non-axisymmetric vorticity distribution can be defined; with the ... Understanding vortex stability and how it relates to vortex breakdown is ... to investigate the non-linear development of the various modes of instability, ... DNS illustrating the onset of vortex breakdown: Visualised using iso-surfaces of ... Onset of the spiral mode of vortex breakdown - Deep Blue AVBD_waveprop.ps Vortex breakdown of nominally axisymmetric, swirling incompressible flows with jet- . the onset of vortex breakdown and govern its mode selection, cf. review ... Hence, both axisymmetric wave and non-axisymmetric hydrodynamic instability. On the axisymmetric vortex breakdown of a swirling jet entering a . of shock-induced vortex breakdown are the recent calcula- tions by Erlebacher . vortex is not axisymmetric, it is envisioned that the onset of breakdown can be ... A study of the mechanisms of axisymmetric vortex breakdown . THE ONSET OF. NON-AXISYMMETRIC VORTEX. BREAKDOWN by. Andrew W. Cary. A dissertation submitted in partial fulfillment of the requirements for the ... A study of the geometry and parameter dependence of vortex . axisymmetric vortex breakdown occurs as a supercritical vortex is decelerated through critical conditions. similar to ... non-axisymmetric disturbance modes on the critical ow. ... no signs of three-dimensional instabilities upstream of breakdown. ?On the Onset of Nonsteadiness in the Flows with Vortex Breakdown . 6 Aug 2004 . This Brief Communication investigates the onset and bifurcation structure of vortex breakdown in a laminar sudden expansion flow. Bifurcation ... Fluid Vortices - Google Books Result Marques F & Lopez JM (2008) `Influence of wall modes on the onset of bulk convection . Lopez JM, Miraglia R & Hirs A (2002) `Non-Newtonian behavior of an Lopez JM (1989) `Axisymmetric vortex breakdown in an enclosed cylinder ... On the bifurcation structure of axisymmetric vortex breakdown in a . IUTAM Symposium on Dynamics of Slender Vortices: Proceedings of . - Google Books Result Vortex breakdown is defined as a dramatic change in the structure of the flow core, with the appearance of stagnation points followed by regions of reversed flow referred to as the vortex . Spiral vortex breakdown: non-axisymmetric mode Publications - Juan M. Lopez The onset of axisymmetric (bubble) and non-axisymmetric (spiral) modes of breakdown is studied . We find that the onset of axisymmetric vortex breakdown. Nonlinear Instability of Nonparallel Flows: IUTAM Symposium . - Google Books Result The non-axisymmetric modes we consider are wavy vortices, spirals, ribbons and twisted Taylor . paradigm for breakdown of laminar to turbulent flow. Many of the flow Bs, but we ignore these since we are close to the onset of instability. Three-dimensional vortex breakdown in swirling jets and wakes . of axisymmetric vortex breakdown. Analyzing nu- ... reliable in predicting the onset of breakdown. Tran- ... used in references,1{6 the non-axisymmetric or spiral. The %ow field of an axisymmetric vortex breakdown has been mapped using a laser- . non-axisymmetric, low frequency periodic fluctuations. Spectra the mean location of the bubble nose was 3 mm upstream of the beginning of the tube. Diapositive 1 - Tel In the experiment by Escudier (1984), the appearance of vortex break- down in a cylindrical . of vortex breakdown, particularly the nonaxisymmetric instabilities. AVBD_comparison.ps.gz - Aerospace Computational Design ... Title, The onset of non-axisymmetric vortex breakdown. Author, Andrew W. Cary. Publisher, University of Michigan, 1997. Original from, the University of ... The Structure of Vortex Breakdown - Annual Reviews A study of particle paths in non-axisymmetric Taylor-Couette . - Core Effect of Nonaxisymmetric Forcing on a Swirling Jet With Vortex . of the nonaxisymmetric modes is associated with the jet-like azimuthal flow in the interior. ... tailed study of vortex breakdown phenomena, in part because the flow is completely ... axisymmetric periodic flows from the onset of

unsteadiness. Vortex breakdown Three-dimensional instability of axisymmetric flow in a rotating lid . ing with nonaxisymmetric swirling flows have been carried out. In the context of ... 3D numerical simulations to study the appearance of vortex breakdown in a ... On the development of three-dimensional vortex breakdown in . Publication » A study of the mechanisms of axisymmetric vortex breakdown. ... Article: The Onset Of Non-Axisymmetric Vortex Breakdown · Andrew W. Cary. On the onset of unsteadiness in confined vortex flows - IOPscience ?With Vortex Breakdown. Nonaxisymmetric forcing was applied to the vortex breakdown flowfield of a strongly swirling jet and its effects were investigated ...

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