

Abstract Submitted  
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**Precession of a rapidly rotating cylinder flow: traverse through resonance**<sup>1</sup> JUAN LOPEZ, Arizona State Univ, FRANCISCO MARQUES, Universitat Politècnica de Catalunya — The flow in a rapidly rotating cylinder that is tilted and also rotating around another axis can undergo sudden transitions to turbulence. Experimental observations of this have been associated with triadic resonances. The experimental and theoretical results are well-established in the literature, but there remains a lack of understanding of the physical mechanisms at play in the sudden transition from laminar to turbulent flow with very small variations in the governing parameters. Here, we present direct numerical simulations of a traverse in parameter space through an isolated resonance, and describe in detail the bifurcations involved in the sudden transition.

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