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Effect of perimetric suction at the rear of a square-back bluff body on the bi-stable dynamics of the wake flow¹ LUC PASTUR, ENSTA Institut Polytechnique de Paris, France, EN-CHI HSU, Institute of Mechanical Sciences and Industrial Applications ENSTA, Institut Polytechnique de Paris, VLADIMIR PAREZANOVIC, Khalifa University of Science and Technology, Abu Dhabi, UAE — Wake flows behind 3D bluff bodies are known to exhibit random switches between two mirror reflectional symmetry-breaking wake flows², each associated with an increase of the drag. Consequently, it may be desirable to symmetrize the flow, if the symmetrization would consist in stabilizing the unstable symmetric flow state associated with a lower drag. One attempt in this direction may consist in steadily blowing symmetrically through perimetric slits at the rear of the body. However, it was recently shown that this mode of actuation could not symmetrize the flow³. The present work is a preliminary investigation of the effect of a steady symmetric perimetric suction at the rear of the body, among other modes of actuation of the wake flow. For moderate flow rates, it is found that the transitions between the two states are promoted, indicating that the actuator has authority on the flow bistability. The resulting resymmetrization of the probability distribution function of the pressure gradient is accompanied by a decrease of the base pressure, together with the slight reduction of the bubble length, as revealed by rear pressure and PIV measurements.

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²M. Grandemange *et al*, **PRE** 86, 035302 (2012).

³M. Lorite-Diéz *et al*, to appear in **PAMM**.

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