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Structural sensitivity of the finite-amplitude vortex shedding behind a circular cylinder[1] PAOLO LUCHINI, FLAVIO GIANNETTI, JAN PRALITS, Università di Salerno — Recirculating flows such as mixing layers, wakes and jets, may sustain synchronised periodic oscillations in a suitable parameter range. Under these conditions the whole flow field behaves like a global oscillator ("global mode"). A theoretical approach to this class of problems, in the context of weakly nonparallel quasi-onedimensional flows, was formulated by Chomaz, Huerre & Redekopp (1991), Monkewitz, Huerre & Chomaz (1993) and Le Dizès *et al.* (1996) who introduced the idea of a *wavemaker*. In the context of a fully twodimensional linear mode analysis of the wake behind a cylinder, a spatial visualisation of the *wavemaker* was obtained by Giannetti & Luchini (2007), who determined the regions where the sensitivity of the frequency of oscillation to a localized feedback from velocity to force is maximal. In this contribution we apply a similar approach to nonlinear, finite-amplitude vortex shedding, in order to assess how unsteadiness and saturation modify the numerical results and how these compare to the predictions of the nonlinear weakly nonparallel theory.

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