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Experiments and nonlinear evolution of instabilities in the sphere wake SOPHIE GOUJON-DURAND, PMMH-ESPCI, KONRAD GUMOWSKI, ADAM PWZERNY, Warsaw University of Technology, LAURETTE TUCKERMAN, JOSE WESFREID, PMMH-ESPCI, PMMH TEAM, WUT TEAM — We performed precise and systematic experiments with PIV in order to measure the velocity field in the wake of a solid sphere in a water channel, in the range of Reynolds number between 200 and 400, where stationary and oscillatory instabilities appear, including hairpin shedding regime. From these experimental data, we are studying the modal decomposition of the streamwise vorticity in an instationnary case with standing waves and we describe the full nonlinear evolution of the bifurcation branches. We are comparing these results with recent theoretical and numerical studies on instability in the spherical wake at these intermediate Reynolds numbers.

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