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Leo Rebholz* (rebholz@clemson.edu) and **Alexander Linke**. *Pressure-induced locking in mixed methods for time-dependent (Navier–)Stokes equations*. Preliminary report.

A locking phenomenon is identified for classical inf-sup stable methods like the Taylor–Hood or the Crouzeix–Raviart elements by a novel, elegant and simple numerical analysis and corresponding numerical experiments, whenever the momentum balance is dominated by forces of a gradient type. More precisely, a reduction of the L^2 convergence order for high order methods, and even a complete stall of the L^2 convergence order for lowest-order methods on preasymptotic meshes is predicted by the analysis and practically observed. On the other hand, it is also shown that (structure-preserving) *pressure-robust* mixed methods do not suffer from this locking phenomenon, even if they are of lowest-order. (Received September 24, 2018)