1125-65-393   **Leo Rebholz*** (`rebholz@clemson.edu`) and **Mengying Xiao** (`mengyix@clemson.edu`).
Improved accuracy in algebraic splitting methods for Navier-Stokes equations.

This paper studies a new alteration of Yosida algebraic splitting methods for the Navier-Stokes equations. By applying the usual or pressure-corrected Yosida splitting techniques to discretizations written in terms of velocity and pressure updates $(u^{n+1} - u^n, p^{n+1} - p^n)$, we show that the accuracy is increased by one full order in Δt without any additional cost in the respective methods. Proofs of the convergence results are given both in linear algebraic and finite element frameworks. Several numerical tests are given which reveal the (sometimes dramatic) improvement in accuracy offered by the proposed fix. (Received August 31, 2016)