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Leo Rebholz* (rebholz@clemons.edu). *Accelerating nonlinear solvers for PDEs from fluids*. Preliminary report.

After reviewing some recent results for Anderson acceleration applied to fixed point iterations, we extend the methodology to several application problems including Navier-Stokes, Boussinesq, and Bose-Einstein condensates. We formulate solvers for these problems as fixed point iterations, and show the fixed point functions satisfy the assumptions of the general theory. Results of several numerical tests will be given. (Received July 22, 2020)