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Adam Larios* (alarios@unl.edu), **Yuan Pei** and **Leo Rebholz**. *An Inviscid Regularization of the Velocity-Vorticity formulation of the 3D Navier-Stokes Equations.*

The Velocity-Vorticity regularization has shown much promise in recent computational studies. However, since it is equivalent to the 3D Navier-Stokes equations, it still suffers from the same issues as 3D Navier-Stokes. In this talk, we apply an inviscid Voigt regularization to only the momentum equation, while leaving the vorticity equation alone. We show that this new 3D system is globally well-posed, and that its solutions converge to solutions of the original equations as the regularization parameters tends to zero, on the interval of existence and uniqueness of the original equations. (Received September 04, 2018)