1171-35-197   **Adam Larios*** (`alarios@unl.edu`). *Inviscid Regularization: Good or bad for turbulence modeling?*

The 3D Euler-Voigt equations can be thought of as an inviscid regularization of the 3D Euler equations in the sense that they are globally well-posed, and the solutions approximate the solutions to the 3D Euler equations. Similar remarks hold for the 3D Navier-Stokes equations. However, is this regularization really giving an accurate picture of the underlying dynamics? We will explore this question, and also a blow-up criterion that allows one to gain information about possible singularity formation in the 3D Euler equations indirectly; namely, by simulating the "better-behaved" 3D Euler-Voigt equations. We will also discuss a new Voigt-type regularization and blow-up criterion based on the Velocity-Vorticity formulation of the 3D Navier-Stokes equations. (Received August 10, 2021)