1129-35-502 **Adam Larios*** (alarios@unl.edu), **Mark Petersen**, **Edriss S Titi** and **Beth Wingate**.
Computational study of the blow-up of the 3D Euler equations of fluids via the 3D Euler-Voigt equations.

We report the results of a computational investigation of two recently proved blow-up criteria for the 3D incompressible Euler equations. These criteria are based on an inviscid regularization of the Euler equations known as the 3D Euler-Voigt equations. The latter are known to be globally well-posed. Moreover, simulations of the 3D Euler-Voigt equations also require less resolution than simulations of the 3D Euler equations for fixed values of the regularization parameter. Therefore, the new blow-up criteria allow one to gain information about possible singularity formation in the 3D Euler equations indirectly; namely, by simulating the better-behaved 3D Euler-Voigt equations. To test the robustness of the inviscid-regularization approach, we also investigate analogous criteria for blow-up of the 1D Burgers equation, where blow-up is well-known to occur. (Received March 21, 2017)