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**Adam Larios\*** (alarios@unl.edu), 203 Avery Hall/PO BOX 880130, University of Nebraska, Lincoln, NE 68588, and **Mark Petersen, Edriss S Titi** and **Beth Wingate**. *A new approach to the computational study of the blow-up of the 3D Euler 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 September 07, 2017)