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Aseel Farhat* (afarhat@fsu.edu), 1017 Academic Way, Tallahassee, FL 32304, and **Zoran Grujić**. *Local near-Beltrami structure of turbulence and regularity of the 3D Navier-Stokes flows.*

Computational simulations of turbulent flows indicate that the regions of low dissipation feature high degree of local alignment between the velocity and the vorticity. Hence, one could envision a geometric scenario in which the persistence of the local near-Beltrami property might be consistent with a (possible) finite-time singularity formation. We will show that this scenario is in fact prohibited if the sine of the angle between the velocity and the vorticity is small enough with respect to the local enstrophy. (Received August 31, 2020)