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Aseel Farhat* (af7py@virginia.edu) and **Zoran Grujić**. *Helical nature of turbulence and the regularity problem of the 3D Navier-Stokes equations.*

Direct numerical simulations showed that there is a high probability that velocity and vorticity vectors of the flow are nearly aligned in regions of high vorticity. We will show that that 3D NSE are regular under some appropriate local condition on the helicity in the the regions of intense vorticity. (Received February 20, 2018)