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Radu Dascaliuc*, Department of Mathematics, Oregon State University, Corvallis, OR 97331-4605, and **Zoran Grujic** and **Michael S. Jolly**. *On the attractor of the 3D Navier-Stokes equations under the vorticity coherence assumption.*

We will discuss energy-entropy bounds on the (weak) global attractor assuming coherence of vorticity direction in regions of intense vorticity. This setting, relevant to both empirical and numerical picture of turbulence featuring formation of coherent vortex structures, is known to imply regularity of the solutions. We relate our results to the question of turbulence and compare them to similar bounds in general case as well as under typical scaling-invariant Navier-Stokes regularity criteria. (Received January 31, 2016)