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John C. Bowman* (bowman@ualberta.ca) and **Pedram Emami**. *Bounds on the global attractor of 2D incompressible turbulence in the palenstrophy–enstrophy–energy space*. Preliminary report.

Analytic bounds on the projection of the global attractor of 2D incompressible turbulence in the palenstrophy–enstrophy plane [Dascaliuc, Foias, and Jolly 2005, 2010] are observed to vastly overestimate the values obtained from numerical simulations. This is due to the lack of a good estimate for the inner product of the advection term $(\mathcal{B}(u, u), A^2u)$ and the biLaplacian. Sobolev inequalities like Ladyzhenskaya or Agmon’s inequalities yield an upper bound [Foias, Jolly, Manley, and Rosa, 2002] that we show is not sharp. In fact, for statistically isotropic turbulence, the expected value of this term is zero. The implications for estimates on the behaviour of the global attractor are discussed. (Received September 02, 2020)