Abstract Submitted
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The Decay of Turbulence After it Stops Rotating.[1] J. BLAIR PEROT, CHRIS ZUSI, Univ of Mass - Amherst — It is well known that the value of the power-law decay rate is reduced when turbulence is rotated. Less well known is how rotating turbulence behaves when system rotation stops. 512^3 DNS simulations of properly initialized isotropic turbulence at a variety of Reynolds numbers and rotation rates are used to show that immediately after rotation stops decaying turbulence has an exponential and not a classical power-law decay. Exponential decay is equivalent to an infinite power-law decay exponent and is a result of a constant physical turbulent timescale. In contrast, classical power-law decaying turbulence has a turbulent timescale that is proportional to the time itself. The implications for the modeling of the dissipation rate, and the physics of the turbulent decay process, are discussed.

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J. Blair Perot
Univ of Mass - Amherst

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