

Abstract Submitted
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A doubly-localized solution of plane Couette flow EVAN BRAND,
JOHN GIBSON, University of New Hampshire — We present a new equilibrium solution of plane Couette flow localized in two spatially extended directions. The solution is derived from the EQ7/HVS solution of plane Couette flow discovered independently by Itano and Generalis (PRL 2009) and Gibson et al (JFM 2009), of which a spanwise localized version has also recently been produced (Gibson, these proceedings). The doubly localized solution displays relatively long length scales in comparison with the spatially periodic and spanwise localized solutions, suggesting the importance of these scales in capturing the spatial complexity of transitional and low-Reynolds number turbulence. The solution is comparable in size and appearance to the doubly-localized, chaotically evolving edge states previously computed in this flow by Duguet et al (PoF 2009) and Schneider et al (JFM 2010). Additionally, we address the structure of localized solutions in the “tails,” i.e. in the region approaching laminar.

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