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Localized critical perturbations for turbulence transition in plane Couette flow TOBIAS M. SCHNEIDER, DANIEL MARINC, BRUNO ECKHARDT, Fachbereich Physik, Philipps-Universitaet Marburg — The transition to turbulence in linearly stable shear flows requires perturbations of finite amplitude. The shape and size of critical perturbations can be determined using the edge tracking algorithm (PRL **96**, 174101 (2006); PRL **99**, 034502 (2007)). In small, periodically continued domains critical perturbations that extend throughout the domain have been identified. Here we determine for wide and long domains localized critical perturbations (edge states) that correspond to minimal disturbances required to trigger turbulence. The edge states are localized in spanwise direction, in downstream direction or in both directions. The smallest structures are dominated by a pair of downstream vortices.

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