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Snakes and ladders: localized solutions of plane Couette flow

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We demonstrate the existence of a large number of exact solutions of plane Couette flow, which share the topology of known periodic solutions but are localized in space. Solutions of different size are organized in a snakes-and-ladders structure strikingly similar to that observed for simpler pattern-forming PDE systems. These new solutions are a step towards extending the dynamical systems view of transitional turbulence to spatially extended flows.

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