Banded laminar-turbulent patterns: mean flows, symmetries and statistics LAURETTE TUCKERMAN, PMMH-ESPCI-CNRS, DWIGHT BARKLEY, University of Warwick — In large-aspect-ratio plane Couette flow, patterns of oblique bands, alternating between turbulent and laminar flow, are the intermediate regime between uniform turbulence and laminar Couette flow. The mean flows corresponding to these patterns, as well as the Reynolds stress force, are found to be represented almost perfectly by a single trigonometric function along the pattern wavevector, leading to a quantitative description in terms of six ODEs. The Fourier component corresponding to the pattern wavelength provides an order parameter for the transition, which can be described as a bifurcation in its probability distribution function.

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