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On unstable modes in plane Couette flow ROUSLAN KRECHETNIKOV, University of Alberta, JERROLD MARSDEN, California Institute of Technology — In this talk we report the finding of spectrally unstable linear modes in plane Couette flow, which are the solutions of the corresponding Orr-Sommerfeld equation on semi-infinite and finite two-dimensional channels, as motivated by standard experimental setups. These modes represent an absolute instability, which takes place for any non-zero Reynolds number. However, a finite non-zero critical Reynolds number does exist when considering a subset of these unstable modes, which suggests that probably not all these modes exist in real experiments as well as their subset (and thus critical Reynolds number) varies from experiment to experiment.

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