

Abstract Submitted
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Control-oriented models of channel flow CLARENCE ROWLEY,
Princeton University — This talk addresses low-dimensional models of the transitional flow through a plane channel. Recent improvements to the technique of proper orthogonal decomposition (POD) and Galerkin projection are reviewed, including the use of carefully-chosen inner products, and the relation of POD/Galerkin to balanced truncation, a method commonly used for linear systems. The method naturally incorporates control inputs, and when applied to a linearized plane channel flow with streamwise-constant perturbations, reduced-order models obtained from balanced truncation produce an order of magnitude smaller error in the H_∞ norm, compared to the standard POD procedure using the same number of modes.

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