

Abstract Submitted  
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**Hybrid RANS/LES of 3D boundary layers**<sup>1</sup> GIUSEPPE DE PRISCO, UGO PIOMELLI, ANTHONY KEATING, Department of Mechanical Engineering, University of Maryland — We describe hybrid LES/RANS calculations of 3D boundary layers, in which RANS is used in the equilibrium region of the flow, and LES is performed in the region where the flow is turning. The 3D boundary layer is obtained by applying a spanwise pressure gradient to a flat-plate boundary layer. At the RANS/LES interface, a synthetic turbulence generation and a controlled forcing loop are used to generate realistic turbulent eddies rapidly and match the RANS statistics. When the RANS/LES interface is placed in a region where the turning of the flow is relatively mild, a control based on the Reynolds shear stresses  $\langle u' v' \rangle$  gives good agreement with the reference LES.

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