

Abstract Submitted
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**Dynamical Contributions to the Skin Friction in Polymer Drag
Reduced Wall-Bounded Turbulence** CHRISTOPHER WHITE, Mechanical Engineering Department, University of New Hampshire, VIJAY SOMANDEPALLI, Mechanical Engineering Department, Stanford University, YVES DUBIEF, Mechanical Engineering Department, University of Vermont, GODFREY MUNGAL, Mechanical Engineering Department, Stanford University — The friction drag in polymer drag reduced turbulent boundary layer flow is decomposed into four dynamical contributions. It is found that drag reduction is achieved by either, or both, an attenuation of the Reynolds stress and a reduction in the total stress gradient near the wall. Particle image velocimetry (PIV) measurements made in a turbulent developing boundary layer flow, with and without polymer drag reduction, demonstrate that polymers produce both these effects.

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