Abstract Submitted
for the DFD16 Meeting of
The American Physical Society

Prediction of wall shear-stress fluctuations in wall-modeled large-eddy simulation[1] GEORGE PARK, MICHAEL HOWLAND, ADRIAN LOZANO-DURAN, PARVIZ MOIN, Center for Turbulence Research, Stanford University — Wall-modeled large-eddy simulation (WMLES) is emerging as a viable and affordable tool for predicting mean flow statistics in high Reynolds number turbulent boundary layers. Recently, we examined the performance of two RANS-based wall models in prediction of wall pressure and shear stress fluctuations which are important in flow/structure interaction problems. Whereas the pressure statistics were predicted with reasonable accuracy, the magnitude of wall shear stress fluctuations was severely underestimated (Park & Moin, *Phys. Rev. Fluids* **1**, 024404 (2016)). The present study expands on this finding to characterize in more detail the capabilities of wall models for predicting τ_w'. Predictions of several wall models in high Reynolds number channel flows ($Re_\tau = 2000$) will be presented. Additionally, a recent empirical inner-outer model for τ_w' (Mathis *et al.*, *J. Fluid Mech.* **715**:163–180 (2013)) is reconstructed using channel flow DNS database , and it is coupled to WMLES to assess its performance as a predictive model in LES.

[1]The majority of this work was carried out during the 16th biannual Center for Turbulence Research (CTR) summer program, 2016. George Park was partially supported through NASA under the Subsonic Fixed-Wing Program (Grant No. NNX11AI60A)

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Date submitted: 01 Aug 2016 Electronic form version 1.4