

Abstract Submitted  
for the DFD09 Meeting of  
The American Physical Society

**Large-eddy simulation investigation of large-scale structures in a long channel flow**<sup>1</sup> DANIEL CHUNG, BEVERLEY MCKEON, California Institute of Technology — We report statistics of large-scale near-wall structures from large-eddy simulation (LES) of turbulent channel flow at friction Reynolds numbers 2 k and 200 k. To properly assess the behavior of large-scale structures, we perform simulations in a channel whose length is 96 times its half-channel width. In agreement with experiments, these large-scale structures were found to modulate the statistics of the underlying small-scale fluctuations. In particular we report that, near the wall, large-scale high-speed streaks carry more intense superimposed small-scale fluctuations, but that this correlation is reversed away from the wall. We also report that the convection velocity of these large-scales near the wall departs slightly, but unequivocally, from the mean velocity.

<sup>1</sup>Funded by NSF.

Beverley McKeon  
California Institute of Technology

Date submitted: 07 Aug 2009

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