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**Active flow control of the logarithmic layer**[1] ANNA GUSEVA, MIGUEL P. ENCINAR, JAVIER JIMENEZ, School of Aeronautics, Polytechnic University of Madrid — Active flow control for years has been a vivid topic of fluid dynamics research. It is of especial importance for wall-bounded turbulent flows, where intense dissipation at the wall can produce undesirable effects. One successful control approach is to apply at the boundary a velocity field opposite to the observed in the buffer layer. The focus of this work is on creating a control strategy that can be reproduced in experimental facilities. By acting on the flow from the wall, we aim to affect the eddies of relatively large wavelengths (/h ¿ 0.1) at $Re_\tau = 1000$. We reconstruct the wall-normal velocity in the log-layer ($y^+ \geq 100$) with the linear stochastic estimation method. Preliminary implementation of opposition control on the large scales results in substantial drag increase, indicating that we are able to significantly affect those scales and have plenty of control authority. In the conference we present further development of this strategy. We compare the control efficiency of applying different wavelength bands at the wall and check the impact of imposed boundary conditions on the statistics of velocity fluctuations, as well as new structures created in the flow. Finally, we assess the general applicability of our control to the existing measurement techniques.

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