

Abstract Submitted  
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**Selective opposition-like control of large-scale structures in wall-bounded turbulence**<sup>1</sup> JOSEPH IBRAHIM, University of Cambridge, ANNA GUSEVA, School of Aeronautics, Universidad Politecnica de Madrid, RICARDO GARCIA-MAYORAL, University of Cambridge — We investigate the effect of controlling large-scale, logarithmic-layer turbulent structures, which have a characteristic size and aspect ratio that scale with the distance from the wall. The aim is to quantify the effect of suppressing these structures while leaving the near-wall turbulent dynamics unaltered. We conduct direct numerical simulations of turbulent channel flows at  $Re_\tau \approx 500$ – $1000$  and artificially remove certain streamwise and spanwise wavelengths of the wall-normal velocity across a range of heights. The wavelengths chosen depend on the target height (and size) of the structures that we wish to target. Our preliminary results suggest that the reduction in drag is observed as a positive, outward shift in the mean velocity profile above the target height that scales in outer units.

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