



## Seminar/Talk

# Physics and Control of Wall-Bounded Turbulent Flows

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Host: Björn Hof

The combination of a no-slip boundary condition and a high fluid momentum forms an important flow category known as wall-bounded turbulent flows. Turbulent wall-bounded flows are known to generate large skin-friction drag, resist flow separation, and efficiently transport a laden phase. To understand the physics of turbulent wall flows, we carried out experimental investigations that characterize the response of turbulent wall flows to a variety of manipulations. I will discuss how changes in (a) the boundary condition, (b) fluid properties, (c) adverse pressure gradient, and (d) the presence of a laden phase affect wall-bounded turbulent flows. The boundary condition is varied using superhydrophobic surfaces, while the fluid properties are modified using a variety of water-soluble drag-reducing additives. An airfoil is used to apply an adverse pressure gradient and investigate the coherent motion of a turbulent boundary layer during an intermittent flow separation process. The final part of this talk touches upon the motion of large particles suspended in a turbulent channel flow.

**Wednesday, February 19, 2020 10:00am - 11:00am**

Meeting room 2nd floor / Office Bldg West (I21.01.132)



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