Reynolds number dependence of the near-wall flow over irregular rough surfaces - Dataset

Surface and velocity data discussed in

[1] A. Busse, M. Thakkar and N.D. Sandham, *Reynolds number dependence of the near-wall flow over irregular rough surfaces*, Journal of Fluid Mechanics (accepted)

is made available to the public. The reader is referred to [1] for a fully detailed description of the dataset and the methods used for its generation.

Contents of the database

The database contains representations of the two surfaces studied, a graphite and a gritblasted surface, and the corresponding time-averaged velocity data for Reynolds numbers $Re_\tau = 90$, 120, 180, 240, 360, 540, and 720.

Surfaces

The height of the graphite and the gritblasted surface versus streamwise and spanwise coordinates is given in the form of two `.csv` files named `graphite_surface.csv` and `gritblasted_surface.csv`

Velocity data

The time- and plane-averaged velocity data is given for each Reynolds number and surface studied in the form of `.csv` files. Files are named according to the following pattern `velocity_<surface name>_<Reynolds number>.csv`. For example, velocity data for the $Re_\tau = 360$ case for the graphite surface is contained in file `velocity_graphite_360.csv`. The first column of each file contains the wall-normal location z (distance from the roughness mean plane) given in units of the mean channel half-height δ and the second column of each file contains the time-averaged streamwise velocity $U(z)$ (given in units of u_τ) at this location.