

Content of the Matlab data files

Turbulent Flow

When loading the files in Matlab a number of variables will become available. U refers to the streamwise velocity components (i.e. the x-direction), and t indicates turbulent flow. 1, 2, 3, and 4 in the variable name refers to spatial positions in the streamwise direction, see Fig. 1. The distance from the transition to position 1, 2, 3, and 4 is 5 cm, 10 cm, 15 cm, and 20 cm, respectively. There are 18 000 samples of each property and 51 points in the wall-normal direction at each streamwise location. Therefore, each Matlab-variable consists of 18 000 rows and 51 columns. E.g. $U1$ has the size $U1(18000,51)$. Times at which the data are sampled are stored in the variable tt (which thus contains 18 000 elements) and the y-coordinates of the points in the wall normal direction are stored in the variable yt (which thus contains 51 elements). Both tt and yt are available in `Turbulent_BL.mat`.

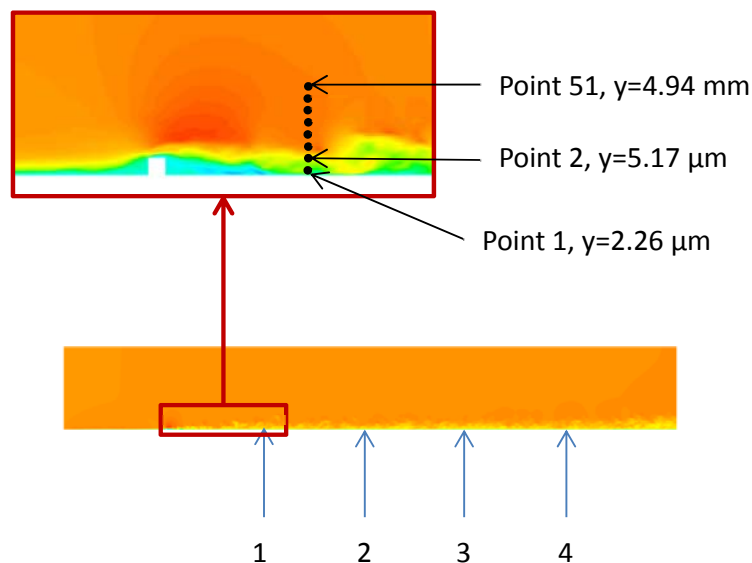


Figure 1: Schematic drawing of the location of sample point in the turbulent flow.

Laminar Flow

Data are stored analogously but there are 46 points in the wall normal direction and data are sampled at five streamwise locations: 10, 20, 30, 40, and 48 cm from the leading edge. Instead of t (for turbulent) the variable names contain an l for laminar.