The recent study report

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April 10, 2021

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This report is about the recent work on the study of the use of python and the application of gunplot.
TODO LIST:

1. *Familiar with data calculation process.(done)*

2. *Use the gunplot to obtion the figure.(done)*

3. *Write a program to get information about the data.(done)*

1   The data calculation process

1.1   logon workstation

ssh yh@10.249.183.158

1.2   preparation

1.2.1   Change program parameters

Enter (vi run.sh) review the program and change the necessary parameters.

1.2.2

Enter (make) to determine the changed parameters.

1.3   Data calculation

1.3.1   Start a new process

screen

1.3.2   Run the script and output

./run.sh > output.txt &

1.3.3   Background operation

ctrl a + ctrl d

1.4   Query data file

Enter(tail -f output.txt) and then obtion the avg.h5 file.

2   data processing

Enter ./output.py -h to get the program help.

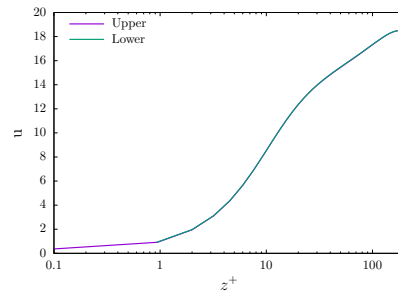## 3   gunplot

Use gnuplot to draw the figure of the data.

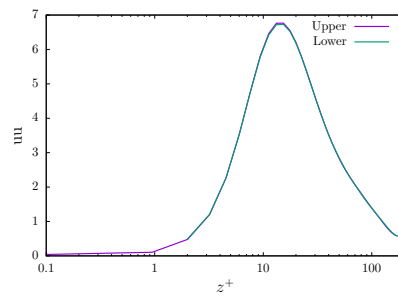Figure 1: Mean-velocity profiles,upper wall-purple line,lower wall-green line

Figure 2: Mean-velocity profiles,upper wall-purple line,lower wall-green line

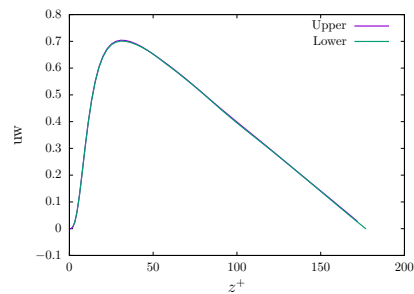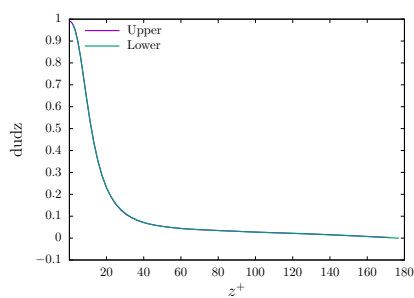Figure 3: Mean-velocity profiles,upper wall-purple line,lower wall-green line

Figure 4: Mean-velocity profiles,upper wall-purple line,lower wall-green line

Figure 5: Mean-velocity profiles,upper wall-purple line,lower wall-green line

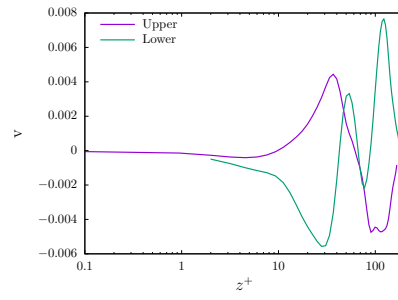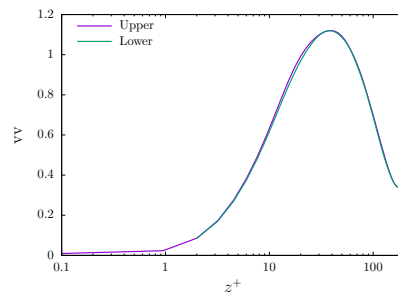
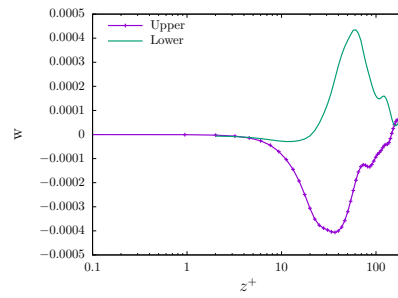*Figure 6: Mean-velocity profiles,upper wall-purple line,lower wall-green line*

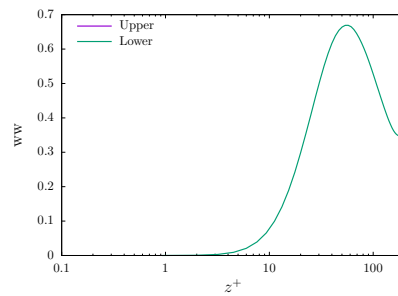*Figure 7: Mean-velocity profiles,upper wall-purple line,lower wall-green line*

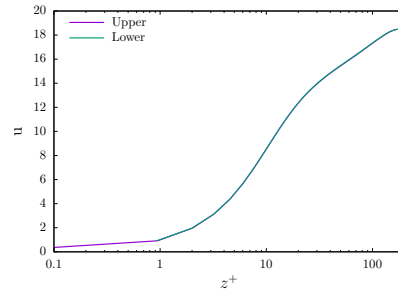*Figure 8: Mean-velocity profiles,upper wall-purple line,lower wall-green line*

Figure 9: Mean-velocity profiles,upper wall-purple line,lower wall-green line

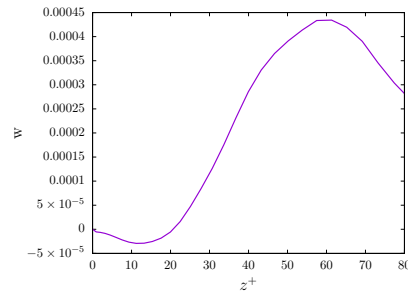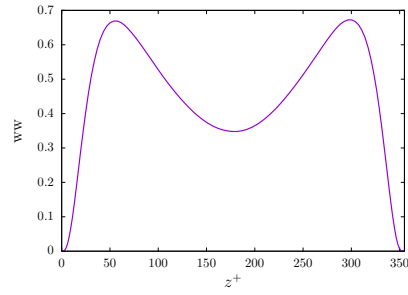

Figure 10: Mean-velocity profiles,$w_{rms} - puperline$

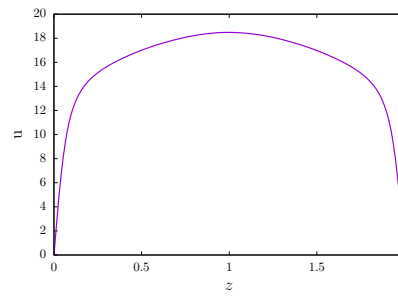*Figure 11: Mean-velocity profiles,$ww_{rms} - puperline$*

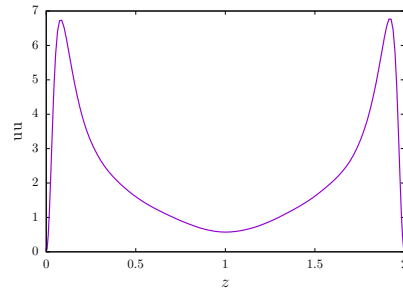*Figure 12: Mean-velocity profiles,$u_{rms} - puperline$*

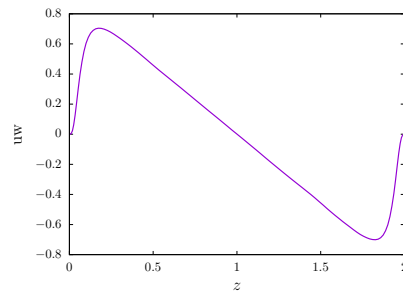*Figure 13: Mean-velocity profiles,$uu_{rms} - puperline$*

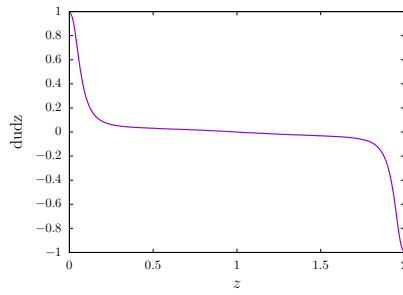*Figure 14: Mean-velocity profiles,$uw_{rms} - puperline$*

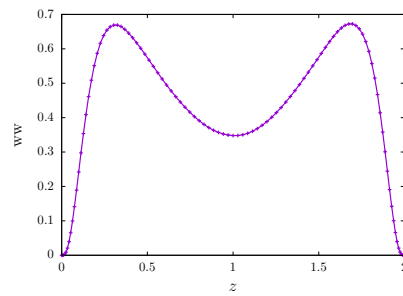*Figure 15: Mean-velocity profiles,$uz_{rms} - puperline$*

Figure 16: Mean-velocity profiles,$ww_{rms} - puperline$

4   Python program-var.py

We have written a program during this period, this program can get the relevant information of HDF5 file.please enter (./var.py -h) To get the usage of the program.

```
(base) cch@debian:~/CTC/DNS-postprocessing/output$ ./var.py -h
usage: HDFView [-h] -f Filename [-v [Variables [Variables ...]]] [-a] [-a -v]

Generate a xdmf file to view HDF file.

optional arguments:
  -h, --help            show this help message and exit
  -f Filename, --filename Filename
                        Type the Filename(must)
  -v [Variables [Variables ...]], --variables [Variables [Variables ...]]
                        Type the Variables
  -a, --all             Type nothing
  -a -v, --all information
                        Type nothing
```

(a) Help

```
▲   🏠 ~    va -f avg.h5 -a                                    ✔  base ◆
lx ly nu nx ny nz p pp pu pux puy puz pv pvx pvy pvz pw pwx pwy pwz tau te tint
ts u utau uu uuu uuv uuw uv uvw uw ux uxux uxvx uxwx uy uyuy uyvy uywy uz uzuz u
zvz uzwz v vv vvu vvv vvw vw vx vxvx vxwx vy vyvy vywy vz vzvz vzwz w ww wwu wwv
 www wx wxwx wy wywy wz wzwz x y zc zd %
```

(b) Print all variables

Figure 17: pyhhon