The recent study report

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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. logon workstation .(ssh yh@10.249.183.158)
2. Change program parameters. (Enter (vi run.sh) review the program and change the necessary parameters.)
3. Enter (make) to determine the changed parameters.
4. Start a new process. (screen)
5. Run the script and output. (./run.sh > output.txt &)
6. Background operation. (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.

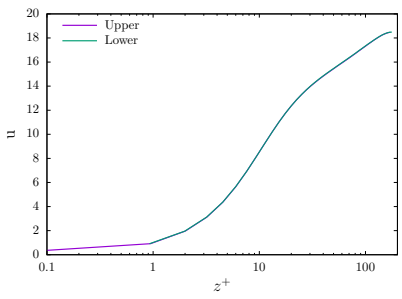

Figure 1: Mean-velocity profiles:U in wall coordinates,upper wall-purple line,lower wall-green line

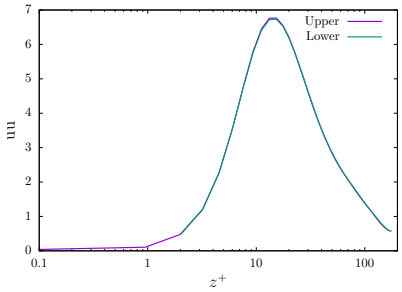

Figure 2: Squared velocity fluctuations normalized by the wall shear velocity:u in wall coordinates,upper wall-purple line,lower wall-green line

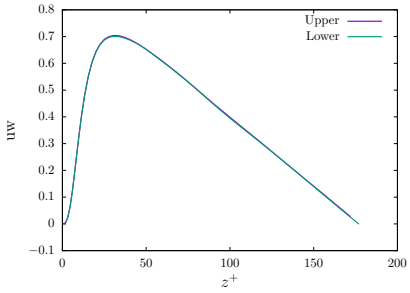

Figure 3: Reynolds shear stress normalized by the wall shear velocity in wall coordinates,upper wall-purple line,lower wall-green line

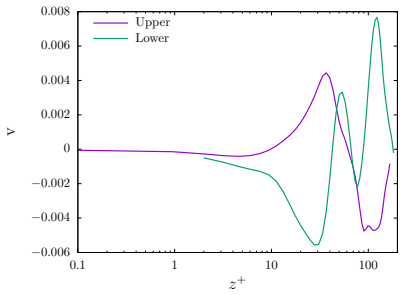

Figure 4: Mean-velocity profiles:V in wall coordinates,upper wall-purple line,lower wall-green line

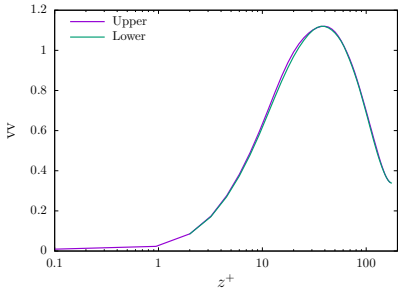

Figure 5: Squared velocity fluctuations normalized by the wall shear velocity:v in wall coordinates,upper wall-purple line,lower wall-green line

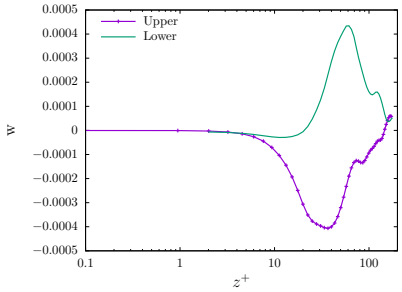

Figure 6: Mean-velocity profiles:W in wall coordinates,upper wall-purple line,lower wall-green line

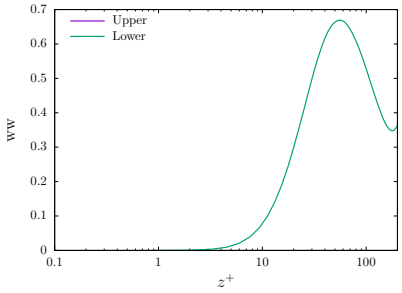

Figure 7: Squared velocity fluctuations normalized by the wall shear velocity:w in wall coordinates,upper wall-purple line,lower wall-green line

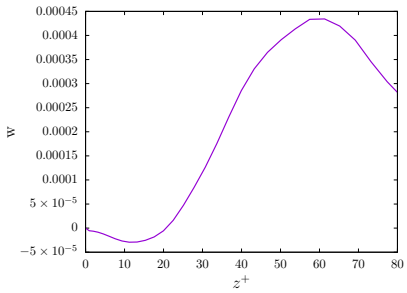

Figure 8: Mean-velocity profiles:w in wall coordinates,w-puper line

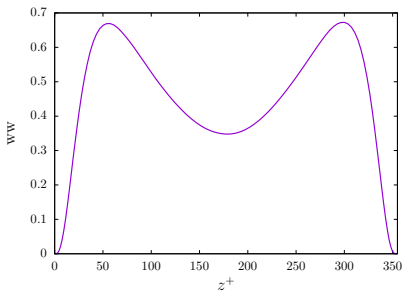

Figure 9: Squared velocity fluctuations normalized by the wall shear velocity:w in wall coordinates,ww-puper line

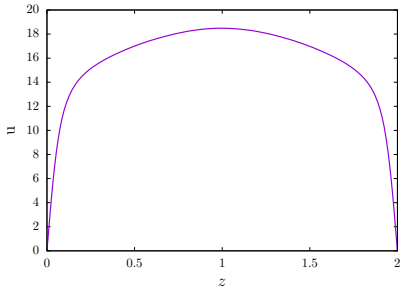

Figure 10: Mean-velocity profiles:U in global coordinates,u-puper line

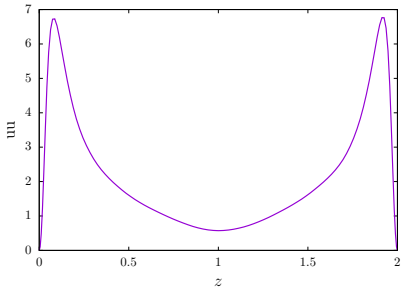

Figure 11: Squared velocity fluctuations normalized by the wall shear velocity:u in global coordinates,uu-puper line

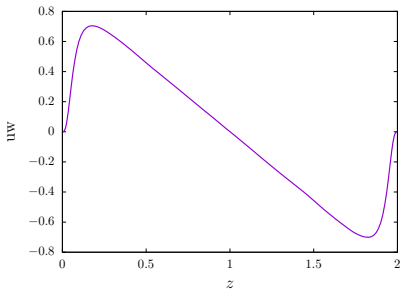

Figure 12: Reynolds shear stress normalized by the wall shear velocity:in global coordinates,uw-puper line

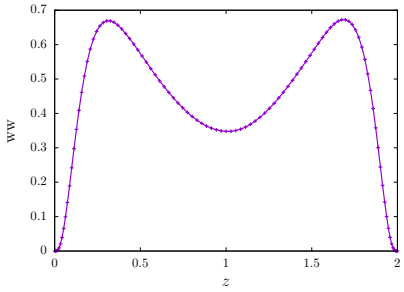

Figure 13: Squared velocity fluctuations normalized by the wall shear velocity:w in global coordinates,ww-puper line

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.

```
~ va -h                                                          base
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

----------------------------
float64
lx ly nu p pp pu pux puy puz pv pvx pvy pvz pw pwx pwy pwz tau u utau uu uuu
uuv uuw uv uvw uw ux uxux uxvx uxwx uy uyuy uyvy uywy uz uzuz uzvz uzwz v vv
vvu vvv vvw vw vx vxvx vxwx vy vyvy vywy vz vzvz vzwz w ww wwu wwv www wx wxw
x wy wywy wz wzwz x y zc zd
----------------------------
int32
nx ny nz te tint ts %
```

(b) Print all variables

Figure 14: pyhhon