Variable Table

Include something about the normalisation of Phi include the minus sign

Using the code

To run the code, see the flow diagram above where the yellow boxes show exactly what to input into the terminal except [number] which means type a number. It is possible to use the SI prefixes as shown in the table. Dogan please make this a table.

A close up of a logo

Description automatically generated

It is also possible to type 5\*10^6 for example which will be interpreted as 5\*10^6 (Turn this one into LaTeX maths mode but not the first one). When entering temperatures ‘ev’ after the number will allow the temperature to be inputted in electron volts, example 5ev will be interpreted as 57970K. Typing “variable” will prompt the user to enter a maximum and minimum value which will produce a graph rather than a number as the result. Once “variable” has been inputted once it will be impossible to set another parameter as the variable.

Adding a new variable

To add a new variable, the procedure is as follows:

Copy the dictionary for flow speed on line 255 and paste it underneath the existing one. Change the values to reflect the new variable and remove all that do not apply. The requirement classes found above the dictionaries can be used to make requirements, to find how to do this, the other dictionaries in the code should provide sufficient examples.

A close up of text on a screen

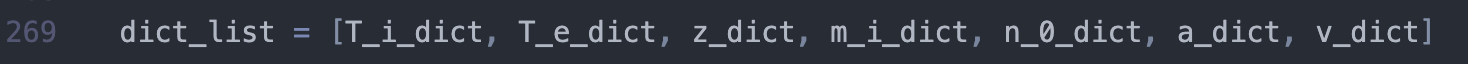
Description automatically generated

All new variables should have a default value corresponding to the case where they are not considered, for example, not considering flow is to have a flow speed of zero. If a normalisation factor is required that depends on the other variables, then an object must be created above the new dictionary. This object will require a new class, to make this copy and paste the class for the flow velocity.

Screen of a cell phone

Description automatically generated

Change the variables it collects for the ones required to make the normalisation factor. Note that if a value within the normalisation factor can be zero then it will cause a dividing by zero error, so something such as the code on lines 194-195 should be added to prevent this.

Once the dictionary is complete add the name of the new dictionary to the list of dictionaries on line 269.

Adding a new model

To add a new model, open the models folder and create a new model as a “.py” file. The name of the file must be the same as the name of the model. The model requires at least five functions; get\_name, colour, get\_info, potential\_finder and priority. For simplicity, copy and paste “OML.py” into the new model and change the details.

A close up of a logo

Description automatically generated

Change the name in get\_name to the new name and change the colour to whatever colour you want the model to be displayed as on a graph.

A screenshot of a cell phone

Description automatically generated

The function get\_info should include all the assumptions made by the model, the range of parameters it is valid over, a reference to where to find the model and any other information that the user may wish to know about the model.

A screen shot of a computer

Description automatically generated

The potential\_finder function collects all the variables it needs to calculate the potential like so. All required variables should be collected in this way. Note the output should have the potential normalised in the same way as the existing models. Dogan please display that factor here including the negative sign.

A screenshot of a cell phone

Description automatically generated

The priority function deals with which model will be chosen for a given set of inputs. For the new priority function the variables should be collected as shown, if they are within the accepted range the priority value should increase by one and return a zero otherwise. Any input without a restriction should still be added and increase the priority function by one. To account for variables added after the creation of the model lines 85-87 should be included such that if there is an input variable not in the list of expected input variables that is not equal to its default value then the priority will be set to zero and the model will not be used. For example if the flow speed is not zero (its default value) then OML will have a priority of zero and will not be used.