C   Gnuplot Useful Informations

C.1   Introduction

Gnuplot is a **portable command-line driven graphing utility** for Linux, OS/2, MS Windows, OSX, VMS, and many other platforms. It was originally created to allow scientists and students to visualize mathematical functions and data interactively, but has grown to support many non-interactive uses such as web scripting.
Gnuplot supports many types of plots in either 2D and 3D. It can draw using lines, points, boxes, contours, vector fields, surfaces, and various associated text. It also supports various specialized plot types.
The command language of gnuplot is case sensitive, i.e. commands and function names written in lowercase are not the same as those written in capitals.
All command names may be abbreviated as long as the abbreviation is not ambiguous.
Any number of commands may appear on a line, separated by semicolons (;).
Commands may extend over several input lines by ending each line but the last with a backslash (n). The backslash must be the last character on each line.
The effect is as if the backslash and newline were not there. That is, no white space is implied, nor is a comment terminated.

C.2   How use Gnuplot command

To use Gnuplot commands you can create a Pipe with the code:

```
FILE * gnuplotPipe = _popen("C:/gnuplot/bin/gnuplot.exe −persistent", "w");
```

and then, with the command

```
for (int i = 0; i < n_commands; i++)
{
    fprintf (gnuplotPipe, "%s \n", commandsForGnuplot[i]);
}
```

we slides an array of char to the Pipe in order to execute plotting commands.
Then the Pipe must be closed with the code:

```
_pclose(gnuplotPipe);
```

C.3   Useful Gnuplot Commands

set terminal wxt <n>	directs the output to plot window number n.
set output 'file.eps'	gnuplot has a postscript terminal that can be used to produce figures in the eps format
set style line <index> default	Each terminal has a default set of line and point types, which can be seen by using the command test. set style line defines a set of line types and widths and point types and sizes so that you can refer to them later by an index instead of repeating all the information at each invocation.
set border/unset border	control the display of the graph borders for the plot and splot commands. Note that the borders do not necessarily coincide with the axes; with plot they often do, but with splot they usually do not.
set xtics/unset xtics	Turn on/off fine control of the major (labeled) tics on the x axis
set key	enables/disable a key (or legend) containing a title and a sample (line, point, box) for each plot in the graph.
set title "<title-text>"	The set title command produces a plot title that is centered at the top of the plot.
plot	Is the primary command for drawing plots with gnuplot.**plot** is used to draw 2D functions and data. plot <plot-element> , <plot-element>, <plot-element>. Each plot element consists of a definition, a function, or a data source together with optional properties or modifiers: plot-element: <definition> | <function> | <data source>
with <style>	Functions and data may be displayed in one of a large number of styles. The with keyword provides the means of selection.
styles	Styles can be: **linetype | lt <line_type>** **linewidth | lw <line_width>** **linecolor | lc <colorspec>** **pointtype | pt <point_type>** **pointsize | ps <point_size>** **labels**: The labels style reads coordinates and text from a data file and places the text string at the corresponding 2D or 3D position.
exit	The commands exit and quit, as well as the END-OF-FILE character (usually Ctrl-D) terminate input from the current input stream: terminal session, pipe, or file input (pipe).
''	The empty filename ' ' tells gnuplot to re-use the previous input file in the same plot command.
offset x,y	Useful tool to position point labels