gs

\*\*\*\*\* Grasp Automation Language Help \*\*\*\*\*

Use a text editor to write a script file using the 'gs' commands below

AND any usual Matlab commands, e.g. to make loops etc.

Run the grasp script file either from the Matlab command line or from the

Grasp Script menu in Grasp

Any Grasp operation can in-principle be automated and the 'gs' script

language is growing according to requested functionality

Please contact me, dewhurst@ill.fr to include additonal functionality

An example file might contain:

gs('load',1,1,'88144{21}') %sample worksheet 1

gs('load',2,1,'88526{21}') %background worksheet 1

gs('display',1,1,0) %Switch display back to sample worksheet 1 sum

gs('bg','on') %Subtract background from foreground

gs('boxit','san',[43,48,60,65,1],[78,84,60,65,1]) %Box Two Bragg peaks

\*\*\*\*\* Commands \*\*\*\*\*

\*\*\*\*\* Instrument and Data Configuration \*\*\*\*\*

gs('load',wks,nmbr,'loadstring')

Loads data into the wks, nmbr

worksheet as described by the 'loadstring'

e.g. gs('load',1,1,'12345{21}')

gs('set\_data\_dir',datapath)

Sets the data directory

e.g. gs('set\_data\_dir','/Users/chuck/Desktop/sans\_data/')

gs('set\_project\_dir',datapath)

Sets the project/output directory

e.g. gs('set\_project\_dir','/Users/chuck/Desktop/')

gs('set\_instrument',facility,inst)

Sets the current working instrument

e.g. gs('set\_instrument','ILL','d22\_legecy')

\*\*\*\*\* Analysis Tools \*\*\*\*\*\*

gs('cm',option)

Calculates the Beam Centre from the centre of mass of the current

displayed image

option = [x1,x2,y1,y2] axis limits within which to take the centre

of mass

e.g. gs('cm')

e.g. gs('cm',[40,80,20,100])

gs('boxit','pname',box1,box2....)

Makes a box sum though the current depth against parameter 'pname'.

boxes are described by [xmin,xmax,ymin,ymax,det], where det is the

detector number. Up to 6 boxes possible

e.g. gs('boxit','san',[43,48,60,65,1],[78,84,60,65,1])

gs('sectors',[R1,R2,Th,dTh,Mirrors])

Opens the sectors tool with inner radius R1, outer radius R2, angle

Th and opening dTh. Mirrors (optional) is the number of mirror

sectors

e.g. gs('sector',[10,100,0,45,2])

gs('sector\_boxit','pname',sectbox1,sectbox2....)

Makes a sector box sum though the current depth against parameter 'pname'.

boxes are described by [R1,R2,Theta,DTheta].

Up to 6 boxes possible

e.g. gs('sector\_boxit','san',[15,25,90,20])

gs('fit1d',fn\_name,curve#,guess)

Fits a 1D curve in the grasp\_plot window with function given by the

fn\_name (as it appears in the functions list), curve# is the curve

number to fit, guess is a flag, 1(yes) or 0(no) as to autoguess

before fitting

e.g. gs('fit1d','Gaussian',1,1)

gs('fit2d',fn\_name,#functions,guess)

Fits a 2D curve in the main grasp window with function given by the

fn\_name (as it appears in the functions list), #functions is the

number of simultaneous functions to fit (note autoguess does not

work for multiple functions), guess is a flag, 1(yes) or 0(no) as

to autoguess before fitting

e.g. gs('fit2d','Gaussian - Polar Pixels',1,1)

gs('fit\_memory',option)

option = 'clear' - clears all fit memory from grasp script

option = 'on' - starts recording of fit parameters. No option

argument defaults to turn on the recording of fit parameters

option = 'off' - stops recording of fit parameters

e.g. gs('fit\_memory','clear')

gs('save\_fit\_params',fnamepath);

Saves the fit parameters to the file and path described by

fnamepath. If fnamepath does not exist then opens a save dialog box

e.g. gs('save\_fit\_params','~/Desktop/fit\_params.dat')

gs('export\_grasp\_plot\_data')

Saves the current data plotted in grasp\_plot

to the directory specified as the project directory.

See gs('set\_project\_dir',datapath)

gs('iq', option1, argument, option2, argument etc.) - IvsQ average

Performes radial average I vs. Q

option = 'sectormask', argument = 0 (off), 1 (on) - Use sector mask

option = 'stripmask', argument = 0 (off), 1 (on) - Use strip mask

option = 'directtofile', argument = 0 (off), 1 (on) - Save direct to file

option = 'qbinunits', argument = 'pixels', 'absolute', 'resolution'

option = 'qbinpixels', argument = 1, 2 etc.

option = 'qbinabsolute', argument = 0.001 etc.

option = 'qbinresolution', argument = 5 etc.

option = 'qbinabsolutescale', argument = 'linear', 'log10'

option = 'singledepthtof', argument = 0 (single), 1 (depth), 2 (tof)

e.g. gs('iq')

e.g. gs('iq','sectormask',1)

e.g. gs('iq','qbinunits','pixels','qbinpixels',2,'directtofile',1')

gs('i2t', option1, argument, option2, argument etc.) - Ivs2Theta average

Performes radial average I vs. 2theta

option = 'sectormask', argument = 0 (off), 1 (on) - Use sector mask

option = 'stripmask', argument = 0 (off), 1 (on) - Use strip mask

option = 'directtofile', argument = 0 (off), 1 (on) - Save direct to file

option = 'thetabinunits', argument = 'pixels', 'absolute', 'resolution'

option = 'thetabinpixels', argument = 1, 2 etc.

option = 'thetabinabsolute', argument = 0.001 etc.

option = 'thetabinresolution', argument = 5 etc.

option = 'thetabinabsolutescale', argument = 'linear', 'log10'

option = 'singledepthtof', argument = 0 (single), 1 (depth), 2 (tof)

e.g. gs('i2t')

e.g. qs('i2t','stripmask',1)

e.g. gs('i2t','thetabinunits','absolute','thetabinabsolute',0.05)

gs('ixi', option1, argument, option2, argument etc.) - IvsAzimuthal angle

Performes azimuthal average I vs. Xi (angle around detector)

option = 'sectormask', argument = 0 (off), 1 (on) - Use sector mask

option = 'stripmask', argument = 0 (off), 1 (on) - Use strip mask

option = 'directtofile', argument = 0 (off), 1 (on) - Save direct to file

option = 'azimuth\_bin\_units', argument = 'absolute'

option = 'azimuth\_bin\_absolute', argument = 1, 2 etc. (degrees)

option = 'singledepthtof', argument = 0 (single), 1 (depth), 2 (tof)

e.g. gs('ixi')

e.g. gs('ixi','sectormask',1)

e.g. gs('ixi','singledepthtof',1)

\*\*\*\*\* Display Tools \*\*\*\*\*\*

gs('display',fw,fn,fd)

Toggles the grasp main display to show worksheet: fn, number: fw,

depth: fd. A depth of 0 displays the sum

gs('bg','on')

Enable/Disable background subtraction 'on', 'off'

gs('bb','on')

Enable/Disable blocked beam subtraction 'on', 'off'

gs('close',option,option2)

Closes the last open grasp\_plot window if option =

option = 'all' closes all grasp\_plot windows

option = '', option2 = <window name>

e.g. option2 = 'Curve Fit Control', closes the curve fit window

e.g. gs('close','all')

gs('axis\_limits',[x1,x2,y1,y2])

Rescales the current display to the given axis limits

e.g. gs('axis\_limits',[40,80,20,100])

gs('axis\_rescale')

Rescales the current display to the full limits

e.g. gs('axis\_rescale');