Beamline Macros

Change Beamline Apertures and Move Diagnostic Stages

- **setBL** *beamline_component value*
  Options for *beamline_component*:
  1. vahgap - variable aperture horizontal gap
     a. *value* = gap in mm
  2. vavgap - variable aperture vertical gap
     a. *value* = gap in mm
  3. esgap - exit slit gap
     a. *value* = gap in um
  4. bds3 - beam diagnostic stage 3 element
     a. *value* = out, yag, OR au
  5. bds4 - beam diagnostic stage 4 element
     a. *value* = out, yag, au, OR pd
- **getBL** *beamline_component*
  Options for *beamline_component*:
  1. vahgap - variable aperture horizontal gap
  2. vavgap - variable aperture vertical gap
  3. esgap - exit slit gap
  4. bds3 - beam diagnostic stage 3 element
  5. bds4 - beam diagnostic stage 4 element

Open and Close Photon Shutters and Gate Valves

- **setPSH** *state* - open or close beamline shutter
  Options for state:
  1. open OR close
- **statPSH** - Displays state of photon shutter.
- **setVVR** *state* - open or close endstation gate valve
  Options for state:
  1. open OR close
- **statVVR** - Displays state of photon shutter.

Turn On and Off Silicon Drift Detector

- **setSDD** *state*
  Options for state:
  1. on OR off

Monochromator Macros

- **getE** - Display current energy of the monochromator
- **setE** *energy*
  energy in eV at the current monochromator position
- **moveE** *energy*
  Options for energy:
  1. Ni LEG: 150 - 900 eV
  2. Au LEG: 95 - 900 eV
  3. Au HEG: 300 - 3000 eV

  Notes: Moves energy to precisely the specified value. When moving down the energy overshoots and comes back. For **Escan**, a **moveE** is not necessary as this is executed in all cases.
- **moveG** *grating*
  Options for *beamline_component*:
  1. NiLEG
  2. AuLEG
  3. AuHEG
- **moveM** *mirror*
  Options for *beamline_component*:
  1. Nickel
  2. Carbon
  3. Silicon
  4. Gold

Undulator Macros

- **setEPU** *epu_component value*
  Options for *beamline_component*:
  1. polar - polarization
     Options for *value*:
     a. cl - circular left
     b. cr - circular right
     c. lh - linear horizontal
     d. lvp - linear vertical positive
     e. lvn - linear vertical negative
     f. li - linear inclined (include angle after)
  2. harmo - harmonic
     a. *value* = 1, 2, 3, 4, OR 5
  3. offset - EPU gap offset
     a. *value* = offset in mm

Current Amplifier Macros

- **statAMP** - Displays the current sensitivity of the current amplifiers
- **setAMP** *amp sens*
  Options for *amp*:
  1. *a* - I0 amplifier
  2. *b* - TEY amplifer
     Options for *sens:*
     a. *up* OR *down* - relative change
     b. *1pA/V OR 2nA/V* - absolute

Notes: The exhaustive list of gains are 1, 2 and 5 with a range of 1 mA/V to 1 pA/V and all orders of magnitude in between.

Beam Status Macros

- **chkBEAM** *parameter state*
  Options for *parameter, state* is on OR off:
  3. ring - checks ring state and safety shutters
  4. psh - checks state of shutters
  5. vvr - checks state of gate valves
  6. on OR off - turns all on OR off
  7. status - display status of checking
- **setBEAM** *state* - ensures beam is available
  Options for state:
  1. on OR off

Special Scanning Macros

- **Escan** *start end1 intervals end2 intervals2 … time [fixQ]*
  Notes: *fixQ* is only available for fourc.
- **Tscan** *time_interval total_time*

Standard Motor Macros

- **ascan** *mot start end intervals time*
- **rscan** *mot start end1 intervals end2 intervals2 … time*
- **lup** *mot rel_start rel_end intervals time*
- **mesh** *mot1 start end intervals mot2 start end intervals time*
- **umv** *mot1 position1 mot2 position …. etc*
- **umvr** *mot1 rel_position1 mot2 rel_position …. etc*

RIXS Macros

Sample Stage Macros

- **setSS** *user preset_num desc* - sets to current position
  Options for *preset_num*:
  1. *1* through 5

  Options for *desc*
  1. A single string, needs to be connected
- **setSS** *user preset_num desc abs_ssh abs_ssd abs_ssv abs_ssa* - sets to the position to current position
  Options for *preset_num*:
  1. *1* through 5

  Options for *desc*
  1. A single string, needs to be connected

  abs_ssh, abs_ssd, abs_ssv and abs_ssa are the positions of the sample stage motors.
- **moveSS** *preset* OR *user user_preset* - moves to preset position
  Options for *preset*:
  1. *tran* - transfer position
  2. *meas* - measure position
  3. *diode* - photodiode
  4. *cryo* - screw for cryo

  The flag *user* is used explicitly and the numbers refers to user preset that was set in **setSS** and can be checked with **statSS**
- ***statSS*** **-** checks the current absolute position of the sample stage and displays the user defined presets.

Spectrometer Macros

- **setXES** *option value*

  Options for *option*:
  1. grating - grating for XES spectrometer
     Options for *value:*
     1. XLEG
     2. LEG
     3. MEG
     4. HEG
  2. pinhole - pinhole for XES spectrometer (no value)
  3. mask - mask for XES spectrometer (no value)
- **moveXES** *energy tilt_offset*

  Options for energy:
  1. Acception energy in eV with grating range

  Options for tilt_offset
  1. Tilt offset in degrees, usually -2 to 4 degrees