BaD ElPh beamline

Changing Gratings/Prefocusing

October 4, 2010

- Close the valve of the shutter
- Close the valve of the main experimental chamber

"Grating"

a. In the program "Main ABS 2010 v1.vi" choose one of the following "Grating":
   1. **AlMgF2** for energy range **4.6 - 13 eV** (requires **Si prefocusing**)
   2. **SiC** for energy range **14 - 18 eV** (requires **Pt prefocusing**)
   3. **Pt** for energy range **14 - 40 eV** (requires **Pt prefocusing**)

b. Go to the monochromator chamber and insert the required grating **manually,** putting the marker of the feedthrough at the following position:
   1. For **AlMgF2: 161.5mm (70)**
   2. For **SiC: 80.06mm (40)**
   3. For **Pt: -1.3mm (30)**

"Prefocusing Mirror"

c. Depending on the grating chosen, decide on Prefocusing mirror considering that:
   1. For **AlMgF2** grating you need **Silicon pref. mirror**
   2. For **SiC** grating you need **Platinum pref. mirror**
   3. For **Pt** grating you need **Platinum pref. mirror**

d. If you need to change the Prefocusing Mirror do the following operations:
   1. In the program "Main ABS 2010 v1.vi" click on the "Select" button of the "Prefocusing Operation" and choose the correct mirror.
   2. Press the "Change Prefoc" button and wait till the pop-up disappears.
   3. The "Actual Prefocusing Mirror" will be upgraded to the selected prefocusing mirror.
   4. Manually check if the correct mirror has been inserted.

“Energy”

e. In the “Energy” field write the value of photon energy (Note: here the decimal separator is the comma) you desire.

Option 1:

a. Choose the “Undulator Gap” in “Auto Movement” for maximizing the photon flux automatically using the 1st harmonic (horizontal polarization).

b. Press the “Set value - OK” button for changing both the photon energy and the gap of the undulator.

Option 2:

a. Choose the “Undulator Gap” in “Fixed”

b. Press the “Set value - OK” button for changing just the photon energy (the undulator gap will not be changed).

c. Put the required undulator gap value (Note: only here the decimal separator is the dot) in “Gap Value” of the “Undulator Gap” panel and press “Set gap”.

Prefocusing re-alignment

f. Go to the photodiode LTM and insert the photodiode **manually** (put the red markers equal, at about 20mm).

g. Open the valve of the shutter.

h. Press the “In line DAQ” button for acquiring the photodiode current.

i. In the “Manual Movements” panel select the “Motor” “Prefoc. Pitch (M5)” , “Direction” “Forward” or “Back”, “number of pulses” of “1”

j. Press the “Set” button several times to maximize the “Photodiode Current” shown in the graph.

k. In the “Manual Movements” panel select the “Motor” “Prefoc. Roll (M4)” , “Direction” “Forward” or “Back”, “number of pulses” of “2”

l. Press the “Set” button several times to maximize the “Photodiode Current” shown in the graph.

m. Repeat the above steps **from i. to l.** to get the maximum photodiode current.

n. Press again the “In line DAQ” to switch off the photodiode current acquisition.

o. Extract manually the photodiode (red marker up to 45 mm)

p. Open the valve of the main experimental chamber.