This guide obtains just brief information. In case you need detailed instructions, read the Woolam VASE software manual.
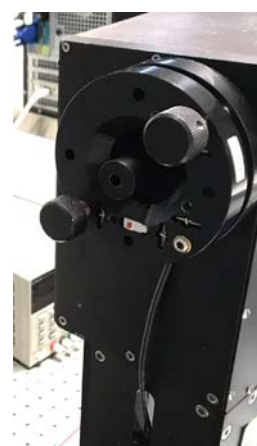
Woolam VASE (UV–VIS–NIR)

Starting the measurement

1. OPTIONAL: Switch on Control Module (fig. 2) after shutdown, then Monochromator power (fig. 1)

   Tun on PC and start Woolam SW, start initialization in Hardware window - it should initialize connection with the Control Module

2. Switch on the lamp (press Lamp *Power* and *Ignition* – fig. 1), let it stabilize for at least 10 min before first measurement (you can calibrate the instrument meanwhile)

Figure 1: A: monochromator power control and lamp ignition   *B: Source arm with a quadrupole detector*

3. Fix the sample – turn on the vacuum valve below the goniometer, check the tube connection behind the sample holder. If the system needs calibration the sample should be homogeneous/isotropic – you can use provided test sample (oxide on silicon).

4. Alignment of the sample

   a. insert alignment quadrupole (see fig. 1b)

   b. select Hardware/Acquire data/Align sample

   c. follow instructions

      i. equalize signal in all 4 quadrants in normal incidence

      ii. correct for z-distance (sample thickness, optionally use rubber plug – distance enhancer – if small sample holder is used)

   If no light is returned to the quadrupole (no signal in any quadrant) in step "c.i" you may need to check possible large misalignment you

      i. switch Monochromator to white light (Hardware/Move/Monochromator/White light)

      ii. check incidence angle – we need normal reflection (Hardware/Move/AOI 0)

      iii. close the iris and look for back-reflected light with a piece of paper

Figure 2: Woolam controller – main power button in bottom right corner

5. OPTIONAL: Calibration (needed if Hardware windows says "initialized NOT calibrated")

   a) Align the Woollam SiO2/Si sample

   b) select Hardware/Acquire data/Calibrate

   c) start Fine Calibration

Measurement notes

1. For precise measurement always use AutoRetarder, i.e. set configuration AutoRet=ON + isotropic + depolarization. Isotropic without AutoRetarder is suggested only for fast measurements

2. For extra precision of Psi measurement use *zone average* mode

3. For high spectral resolution you need to adjust the slit width (default is 1800um with autoreduction when signal is too strong). To calculate the width, use these grating dispersions:

   - UV/VIS 2.3 nm/mm
   - NIR 4.6 nm/mm

   e.g. for 1nm resolution you set 1/2.3 = 0.434 mm slit width for UV/VIS and 1/4.6 = 0.217 mm slit width for NIR range.

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