## BL40XU: Microbeam small-angle X-ray diffraction of hair

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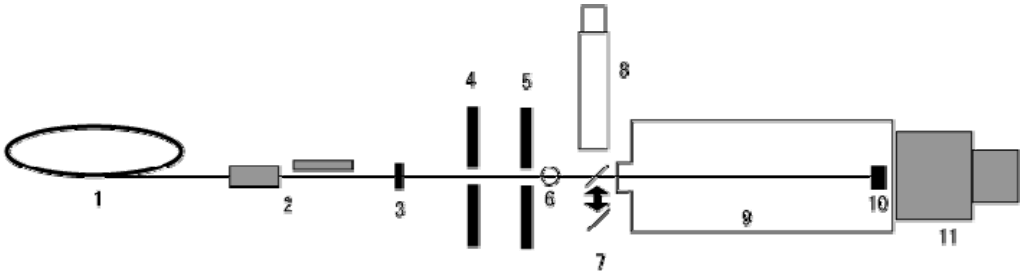
1. Learning about BL40XU
    A) Light source, slits and mirror systems
    B) Microbeam small-angle X-ray diffraction

2. Training on adjustment of components and timing
    A) adjust the positions of pinholes and a beam stop
    B) adjust the position of a microscope for sample positioning
    C) find proper timing of an x-ray shutter and detector
    D) measure a beam size

3. Microbeam small-angle X-ray diffraction measurement
    A) estimate the pixel size of a 2D detector
    B) data acquisition of calibration sample
    C) scanning measurements using samples such as hair

4. Practicing data analysis
    A) handling of scattering data in a 2D array
        read and display
        slicing
        circular averaging (partially)
        find the beam center
    B) calibrate the scattering vector
    C) sequential processing




Schematic diagram of the microbeam small-angle x-ray diffraction set-up at BL40XU.
1. synchretron x-ray source, 2. two focusing mirrors, 3. x-ray shutter, 4. collimating pinhole,
5. guard pinhole, 6. sample, 7. optical mirror for sample positioning, 8. microscope system,
9. vacuum pipe, 10. beam stop, 11. x-ray detector