

Distance chopper to detector .....	6.25 m
Distance sample to detector .....	2 m
Wavelength range .....	3 Å to 25 Å
Wavelength resolution .....	fixed $\Delta\lambda$ from 0.1 Å to 1 Å
Angular range .....	0.1° to 6°
Angular resolution .....	0.007° to 0.15°
Position of the surface .....	horizontal
Horizontal beam size at the sample .....	25 mm
Vertical beam size at the sample .....	0.5 mm to 10 mm
Detection .....	$^3\text{He}$
Maximum intensity .....	1000 count.sec <sup>-1</sup> Å <sup>-1</sup> at 3.5 Å
Background .....	1 count.hour <sup>-1</sup> Å <sup>-1</sup>
Minimum measurable reflectivity .....	5.10 <sup>-6</sup>
Typical acquisition time : .....	4 h - 8 h (soft matter)

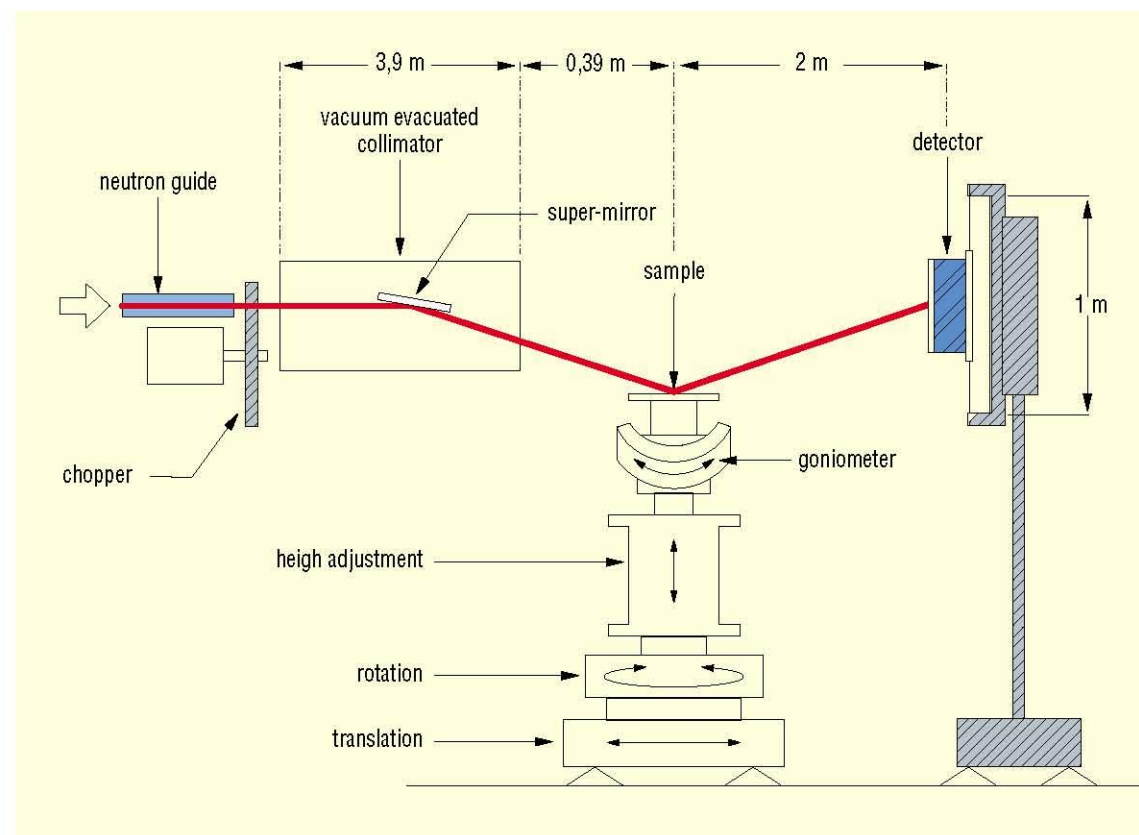
Ancillary equipment

- ★ Multireflections system for samples of 10 cm to 50 cm long
- ★ Furnace (60°C, 200°C)
- ★ Magnets with horizontal or vertical field between 0.001 T and 1 Tesla
- ★ Controlled temperature cells (from -40°C to 60°C) for liquid surface measurements
- ★ Polarizer and flipper for polarized neutron measurements

This reflectometer is dedicated to the study of interfaces by neutron reflection. The reflected intensity at grazing angle of a non polarized white neutron beam is measured as a function of wavelength. The variation of this reflection coefficient (reflectivity) with the wavevector is linked to the concentration profile perpendicular to the interface. If this profile is represented by a succession of different layers, the thickness, composition and roughness of each layer may be determined within the range from 2 to 500 nm for thickness and 1 to 20 nm for roughness. All type of interfaces might be studied, including air/liquid interfaces.

The reflectometer is installed at the end of the neutron guide G6. It is composed first of a chopper that produced the neutron bursts. Then, a 3.9 m evacuated collimator defined a very narrow neutron beam. Inside the collimator, a neutron supermirror enables the deviation of the beam towards liquid surfaces. The samples are installed on a goniometric head for alignment purpose. The reflected intensity is measured at a 2 to 4 m distance by single  $^3\text{He}$  counter.

A polarizer and a flipper can be installed in order to perform polarized neutron measurements. A multireflections measurement system providing a better precision on the reflection coefficient when this one is close to one is available.



General layout of the spectrometer G 3 BIS.

Responsibles : D. Lairez e-mail : [didier.lairez@cea.fr](mailto:didier.lairez@cea.fr)  
L.-T. Lee e-mail [lay-theng.lee@cea.fr](mailto:lay-theng.lee@cea.fr)