

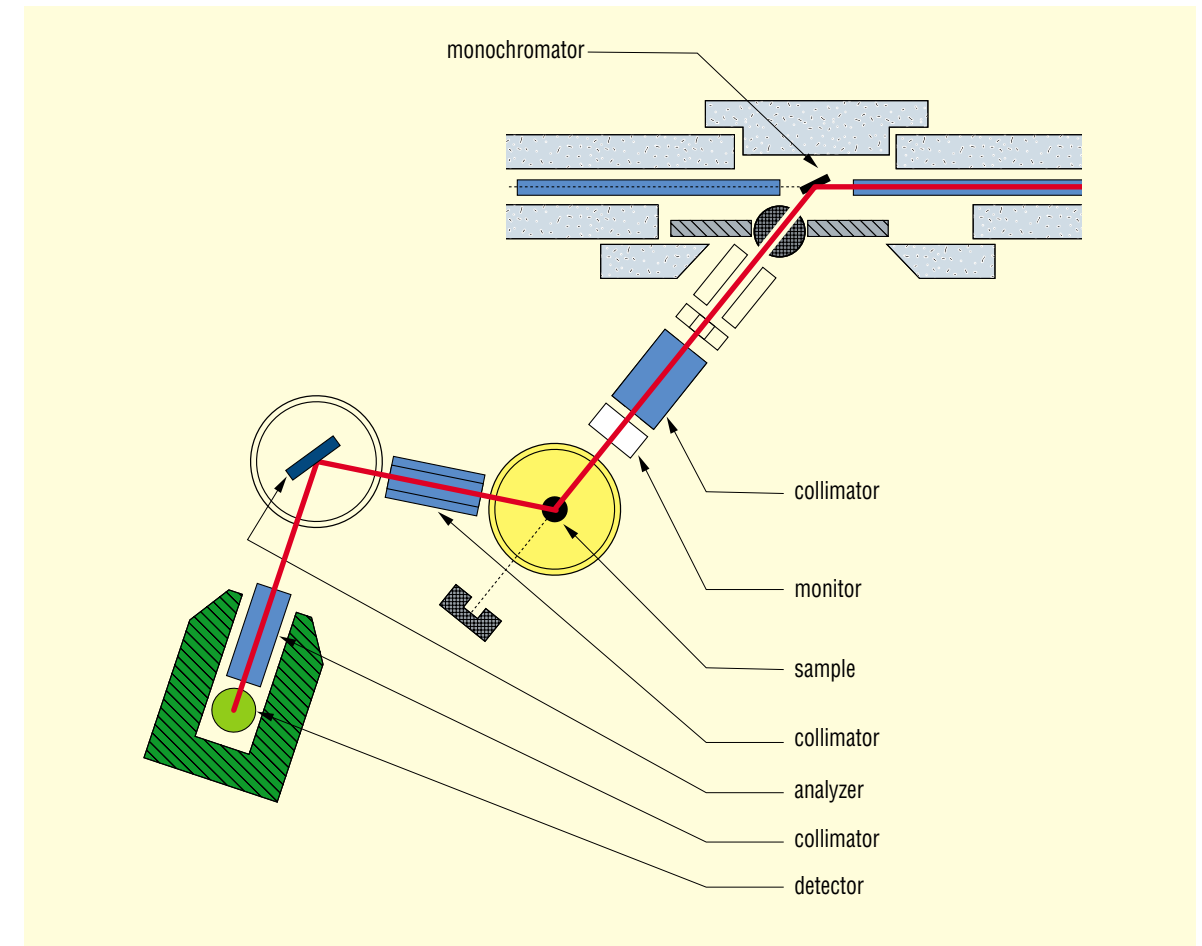
Beam tube	Neutron Guide G4 25 x 150 mm ²
Monochromator	Pyrolytic graphite 75 x 150 mm ²
Analyzer	Pyrolytic graphite 75 x 100 mm ²
	Vertically bent (curvature is adjusted automatically)
Incident wavelength	$0.235 < \lambda < 0.6$ nm
Incident energy resolution	$0.005 < \delta\omega < 0.2$ THz
Collimations	Interchangeable, 60', 30', 10'
	on each arm after monochromator
Range of monochromator angle	$40^\circ < 2\theta < 140^\circ$
Range of scattering angle	$-140^\circ < \phi < +140^\circ$
Range of analyzer angle	$-155^\circ < 2\theta < +155^\circ$
Range of crystal orientation	$0 < \psi < 360^\circ$
	Eulerian cradle or goniometer
Max. flux at specimen	$5 \cdot 10^5$ n/cm ² sec ($k_i = 18.5$ nm ⁻¹)
Beam size at specimen	Width : 25 mm ; height 50 mm
→ Momentum transfer	0 - 30 nm ⁻¹
→ Energy transfer	0 - 3 THz
Detector	³ He
Ancillary equipment	
	★ Be filter (77 K)
	★ Furnace (20 - 1200°C)
	★ Multidetector : only in diffraction mode (without analyzer)
	★ Triple Axis Equipment Pool (see on front page of this chapter)

On the one hand this spectrometer is used for the investigation of inelastic scattering at low energies with high resolution like measurements of dispersion curves of phonons and magnons, phonon softening, etc... On the other hand it serves for elastic studies on problems where good peak/background ratio, suppression of inelastic scattering and high resolution of momentum and/or energy transfer are essential.

The neutrons are extracted from the guide by a focusing monochromator of pyrolytic graphite. Wavelengths are available in the range of 0.235 nm to 0.6 nm which allows the use of a pyrolytic graphite ($k_i = 26.62$ nm⁻¹) or a beryllium ($k_i = 15$ nm⁻¹) filter for suppressing second order contributions from the incident beam.

All modules are set on air cushions. The spectrometer is entirely controlled by a Unix computer system and all elements (mechanical, electrical, software and data treatment) are fully compatible with the other triple axis spectrometers of the LLB. Because of its position at a cold guide, the conditions are particularly favourable for investigations requiring low background and excellent resolution.

The goniometers of this spectrometer permit to mount every equipment available through the triple axis pool such as pressure cells, cooling devices and magnets.



General layout of the spectrometer G 4-3.

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