Beam tube .... Cold G6. Neutron guide 2.5 x 5 cm^2
Incident wavelength .... $2 < \lambda < 12$ Å
Range of incident energies .... $0.6 < E < 20$ meV
Monochromator = counter rotating choppers .. 20 000 RPM (equivalent)

Elastic energy resolution ....$1\ \% < \frac{\Delta E}{E} < 8\ \%$

Distance from sample to detectors .... 3. 58 m
Horizontal divergence .... ±0.1° per Å on the sample
Vertical divergence .... ±0.1° per Å on the sample
Flux at specimen .... 1.2×10^4 n/cm^2/sec at 5.0 Å.
Beam size at specimen .... 2.5 x 5.0 cm^2

Detectors (size and scattering angle at specimen) :

★ 400 ^{3}He detectors (width = 32 mm, height = 370 mm) located at 67 positions ($\Delta\theta = 1.3°$, $\Delta\Omega = 5.6\ 10^{-3}$ sterrad) $35° < 2\theta < 147°$
★ 32 ^{3}He detectors (width = 32 mm, height = 250 mm) located at 4 positions between $12° < 2\theta < 32°$.

Ancillary equipments available

★ Cryostat 1.5 K < T < 300 K
★ Cryogenerator 10 K < T < 300 K
★ Furnace 50°C < T < 400°C
★ Cryofurnace 4 K < T < 600 K
★ Thermo regulated bath -40°C < T < 100°C
★ High Temperature furnace 200°C < T < 1200°C
★ Cryoloop 110 K < T < 700 K

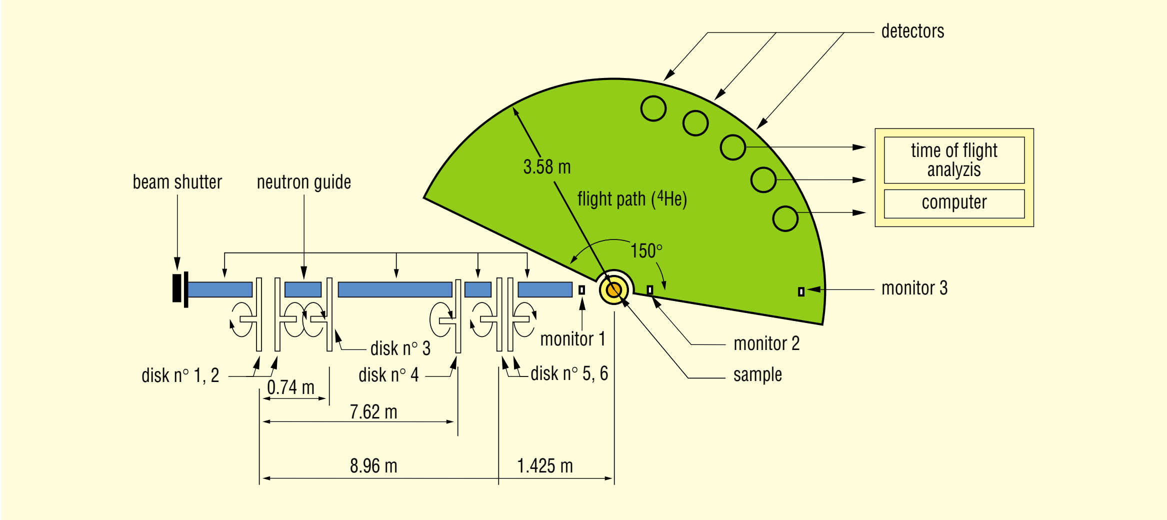
MIBEMOL is an inelastic time-of-flight neutron spectrometer. It is designed to study soft non dispersive excitations in condensed matter between 0.01 and 100 meV (1 meV = 8 cm^{-1} = 0.25 Thz). The corresponding time-scale ranges from 10^{-13} up to 10^{-10} seconds.

Typical study performed on the instrument cover field as different as spin dynamics in high Tc superconductors, tunneling, dynamics of quantum liquids, dynamics of soft matter, biology, local and long range diffusion in disordered systems.

The spectrometer is settled at the end of the G 6 cold guide. The monochromatisation of the incident beam is achieved by a system of six choppers.

The flight path from end of the guide to sample is under primary vacuum. To avoid scattering by atmospheric water the time-of-flight basis is filled with He.

As shown on Fig.1, flux at sample, energy resolution and accessible Q range (not shown) are strongly dependent of incident wavelength on sample. Mibémol is a very versatile instrument that makes possible to set-up those parameters so as to match with the best conditions needed to deal with the excitation under study. Some numerical examples showing large increase of flux upon spectrometer setting are given in table 1.



General layout of the time-of-flight spectrometer G 6-2.

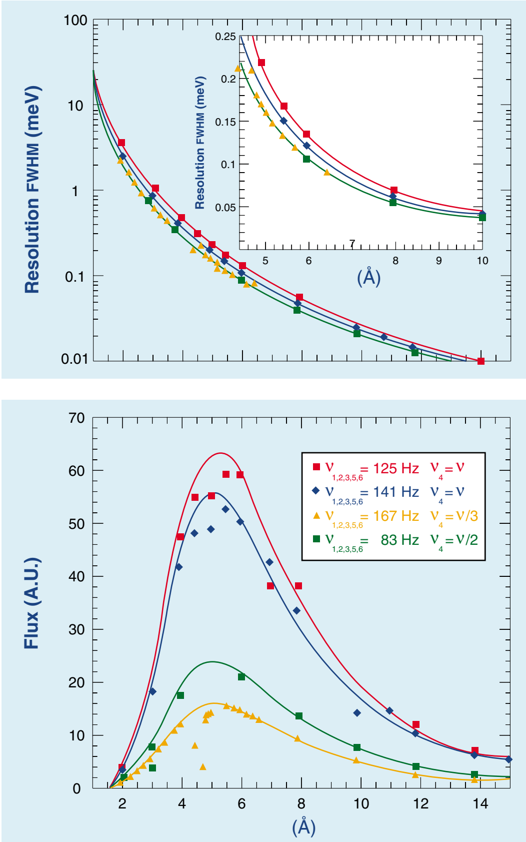


Fig. 1 : *Examples of some achievable instrumental conditions on Mibémol as function of neutron incident wavelength.*
For a given incident wavelength, while the resolution is a slowly varying function of the speed of the choppers, the flux is strongly dependent of this parameter.
Top : Corresponding energy resolution (FWHM). Symbols and colors are the same as for bottom plot. Resolutions achieved for usual wavelength are shown in the inset.
Bottom : Flux at sample as a function of the speed of the choppers. For all curves, frequencies of chopper 1, 2, 3, 5, 6 are equal. The frequency of chopper 4 (anti-overlap chopper is indicated).

Table 1 : *Selected examples showing the increase of flux obtained for two usual energy resolutions (R) by interplay of chopper frequencies (ν) and initial wavelength (λ). For each resolution, calculations have been made by considering $\nu_2 = \nu_1$ and $\nu_2 = \nu_1/3$.*

		$\nu_2 = \nu_1$		$\nu_2 = 0$	
R (µe V)	$\nu_{1,3,5,6}$ (Hz)	λ (Å)	Flux (A.U.)	λ (Å)	Flux (A.U.)
	166	5.8	15.9	5.9	23.5
100	133	6.3	18.4	6.4	26.9
	83	7.3	22.8	7.5	32.7
	166	9.3	6.3	9.5	8.9
24	133	10.0	6.4	10.3	9.0
	83	11.8	6.4	12.0	9.0

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