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| Monochromator | Multilayer Ni-Ti on Si Fixed wavelength $\lambda = 8 \text{ \AA} \pm 0.5$ |
| Polarizer | Flat mirrors in reflection geometry Transmission 45% Polarization 94% |
| Collimation length | 7 m fixed |
| Sample to detector distance | 0.8 m to 3.8 m variable in steps of 1 m |
| Area detector | 64 x 64 cm, resolution 5 mm |
| Beam intensity | $3 \cdot 10^4 \text{ n/cm}^2/\text{s}$ at the sample |
| Data acquisition | Proprietary, PAXY compatible Time resolved acquisition possible |
| <u>Ancillary equipment</u> | Apparatus for dynamic polarization, with in particular : ★ Superconducting magnet : 3.5 T horizontal split coil with high homogeneity ($5 \cdot 10^{-5}$) horizontal access parallel ($\varnothing 89 \text{ mm}$) and perpendicular to the field ($\varnothing 42 \text{ mm}$) ★ Dilution insert to cool the ^4He -filled sample holder to $T = 0.2 \text{ K}$ |

PAPOL is mainly dedicated to the development of macromolecular structure studies using the method of contrast variation by dynamic nuclear polarization. Making use of the large spin-dependent scattering length of ^1H , this method is an alternative to isotopic substitution H - D in hydrogen-rich samples.

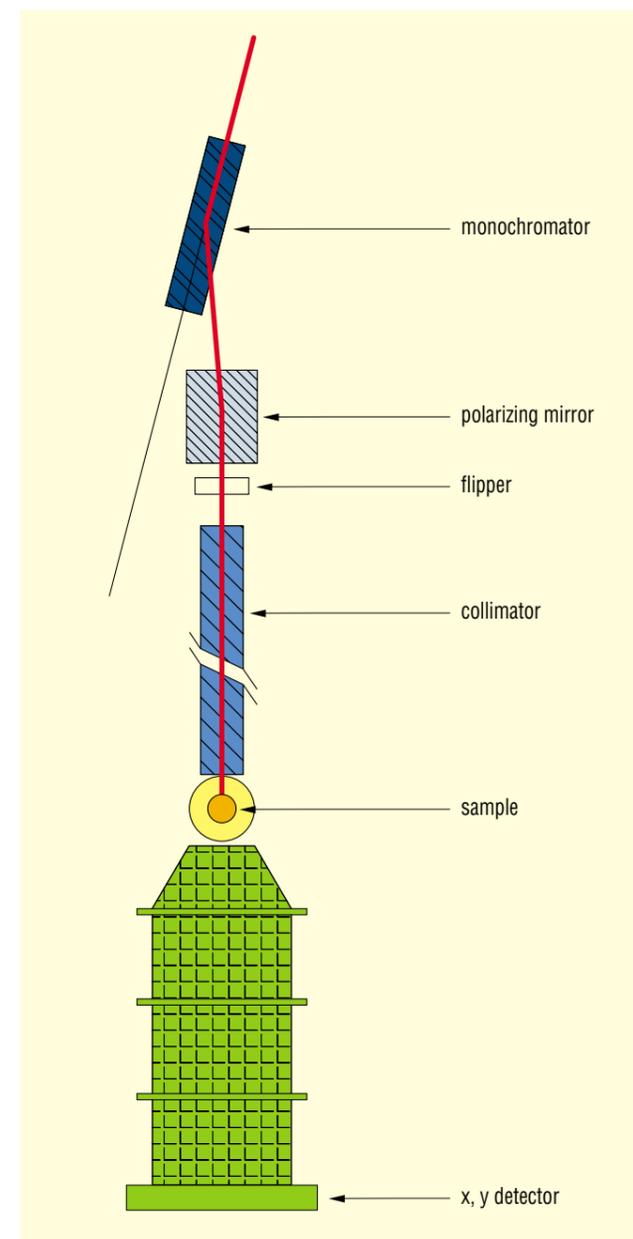
All the equipment necessary to create and to measure the nuclear polarization is available :
- a 3.5 T horizontal field with high homogeneity ($5 \cdot 10^{-5}$)

- a dilution insert able to cool the sample, inserted in ^4He , down to 0.2 K

- microwave sources (70 GHz and 94 GHz) for dynamic nuclear polarisation

- a CW NMR spectrometer to measure and to manipulate the polarization.

PAPOL is also particularly well suited to study magnetic nanoscale objects (Magnetic particles, clusters, vortices, etc...). In addition to the pure magnetic and nuclear contributions, its polarized beam is able to measure with high precision the interference term which is linearly dependent on magnetisation density.



General layout of the diffractometer G 5-5.

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