

Multibeam collimation implemented for the ICCAS / CARR SANS instrument

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Abstract

The multibeam focusing collimation system, experimentally proved at the Budapest Research Reactor, is included into the 15m long Collimator unit of the CARR ICCAS SANS instrument.

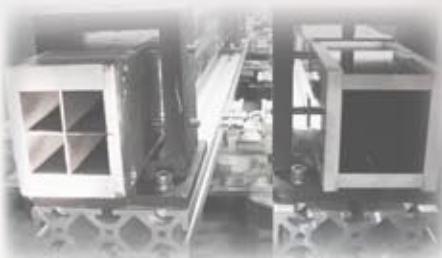
This option might yield a gain factor of 2 - 6 in the detected intensity in most cases of experiments. The instrument characteristics (resolution, sample size and illumination) are evaluated for several aperture sizes of the multibeam collimator as well as for various available configurations of the Collimator.



Installed collimator unit of the CARR ICCAS SANS instrument

Collimator system:

- Total length: 15m
- Scattering vector q range: $1.0 \times 10^{-2} \text{nm}^{-1} \sim 5.0 \text{nm}^{-1}$
- Wavelength range: λ : 0.25nm \sim 2.0nm
- Incident wavelength resolution $\Delta\lambda/\lambda$: 8 % \sim 25 %
- Horizontal movement in evacuated housing with vacuum 10Pa
- Guide-multibeam positioning rail system precision $\pm 0.05\text{mm}$



High accuracy guide-multibeam positioning rail system



Diaphragm with variable aperture.

