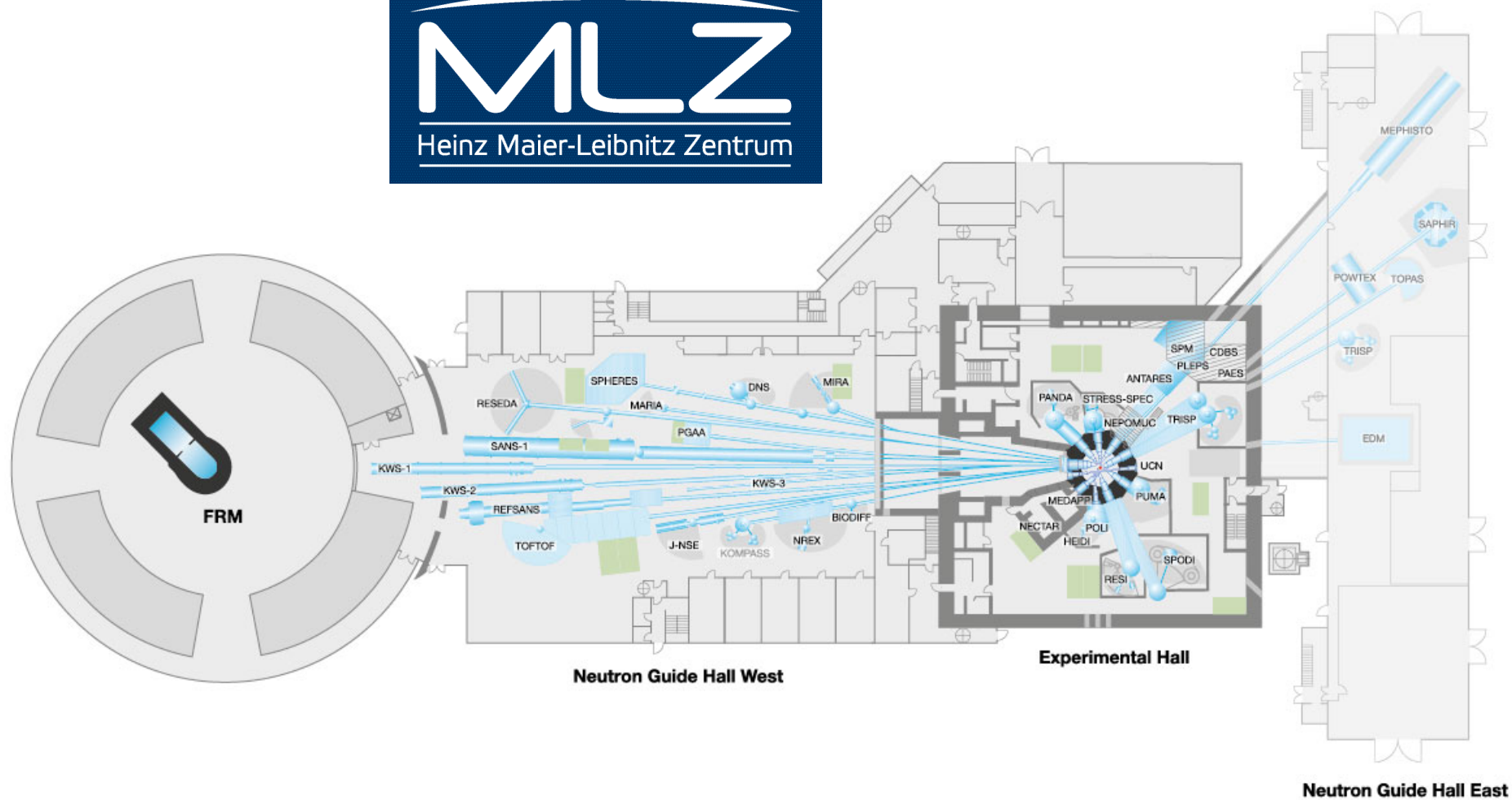




Dr. Jürgen Neuhaus, Technische Universität München
Forschungs-Neutronenquelle Heinz Maier-Leibnitz (FRM II)



Instrument ODIN

Imaging for science and technical applications



M. Schulz
M. Seifert
B. Schillinger
P. Böni

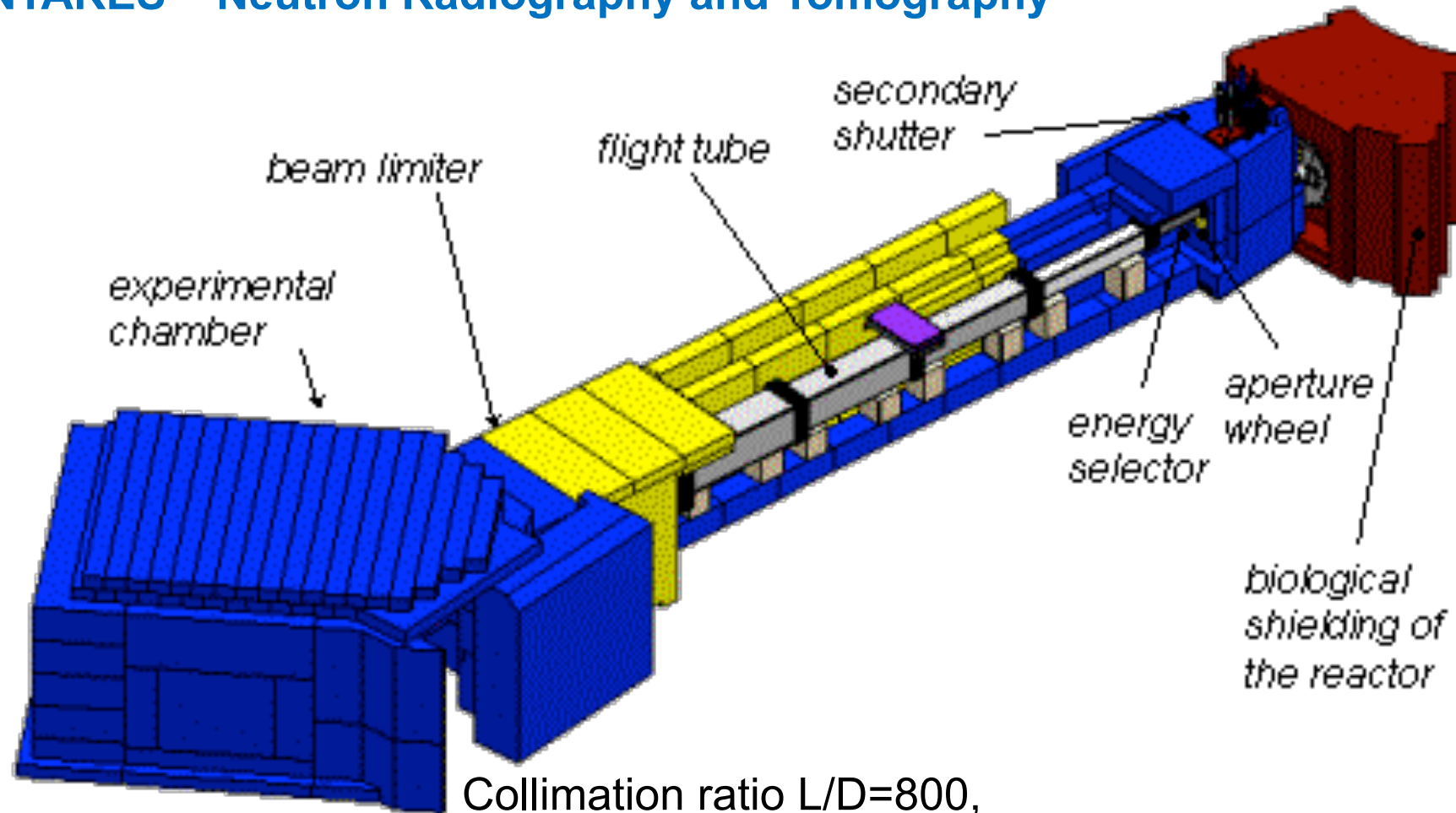


A. Hilger
N. Kardjilov
C. Zendler
K. Lieutenant
M. Bulat
M. Trapp



M. Strobl

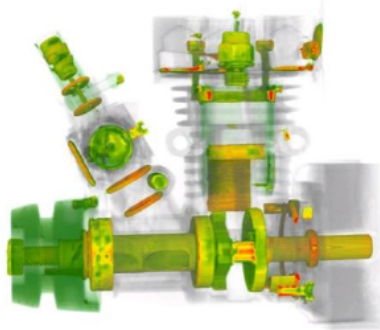
ANTARES – Neutron Radiography and Tomography



Collimation ratio $L/D=800$,
Field of view $100 \times 100 \text{ mm}^2 \sim 100 \text{ } \mu\text{m}$ pixel resolution

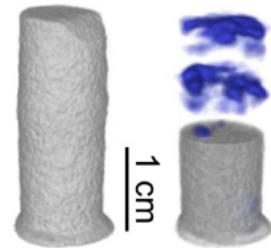
Instrument ODIN

**standard
neutron
imaging**



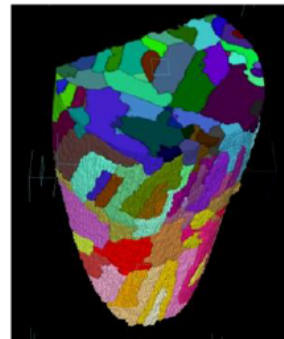
polychromatic

**depolarization
imaging**



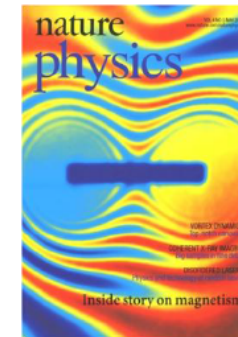
10 %

**dark field
and phase
imaging**



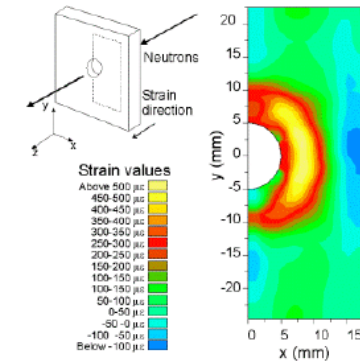
10 %

**quantitative
magnetic
imaging**



1 %

**stress and
strain
imaging**

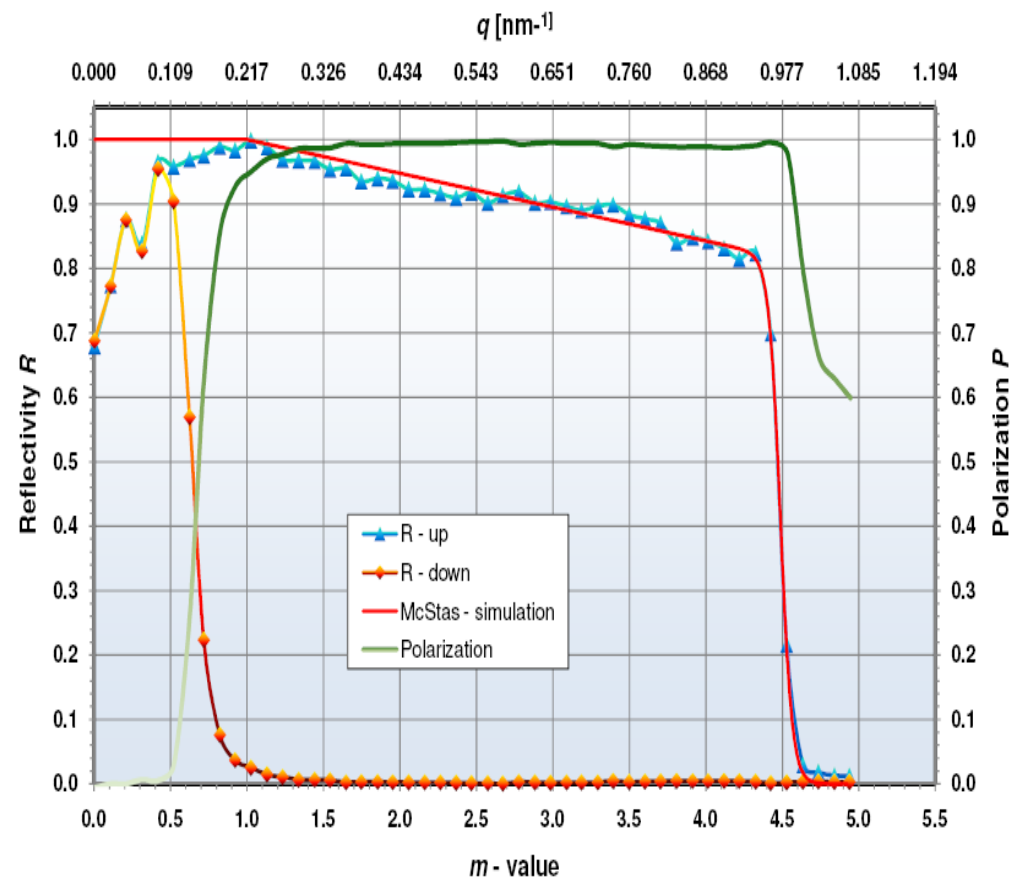
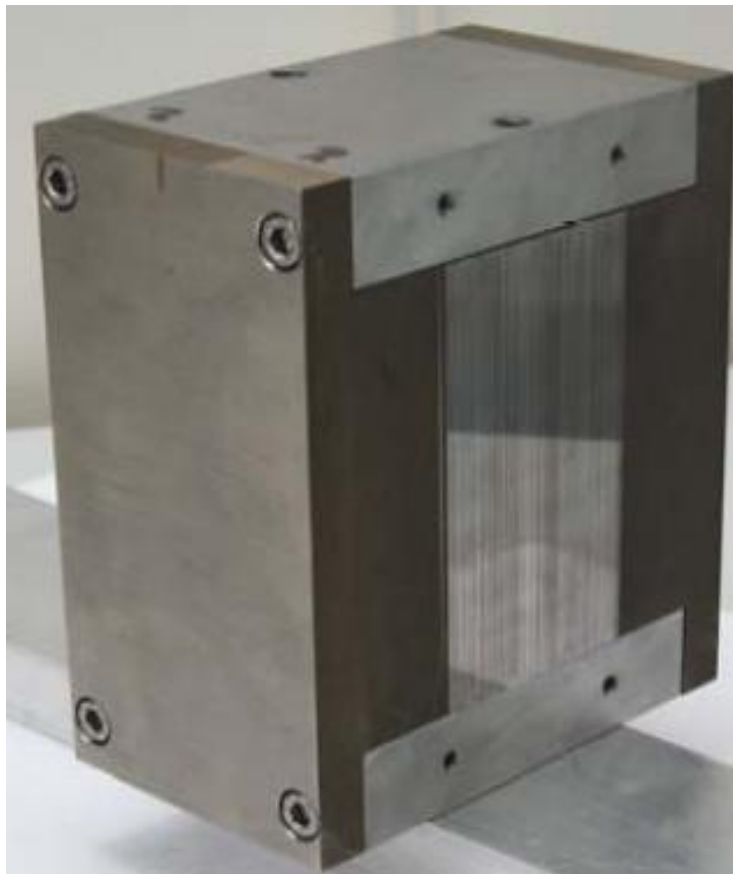


≤ 0.5 %

- High demand for wavelength-dependent imaging techniques
- Variable resolution can be realized with a sophisticated chopper system

Instrument ODIN

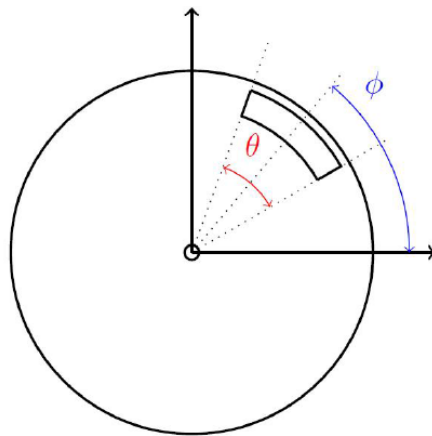
Polarising bender for imaging (development HZB)



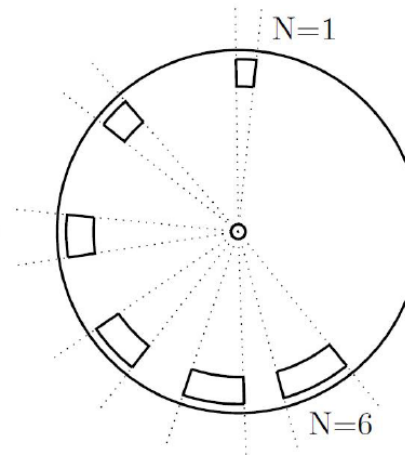
Designed and fabricated by Swiss Neutronics

Development of chopper system for imaging

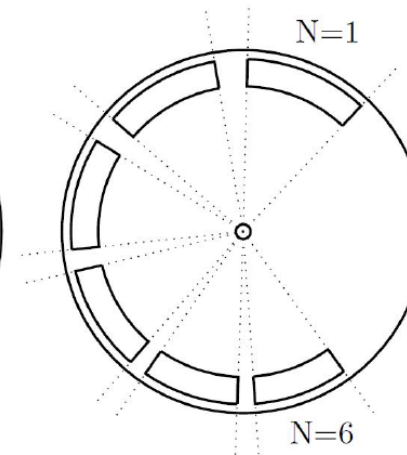
Definition of opening
angle and chopper phase



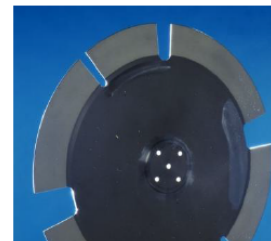
First WFM chopper disc
constructed using
Eqs. (1) and (3)



Frame Overlap chopper
disc constructed using
Eqs. (4) and (5)



Seems feasible, but we
may need very large
chopper discs (2m) !

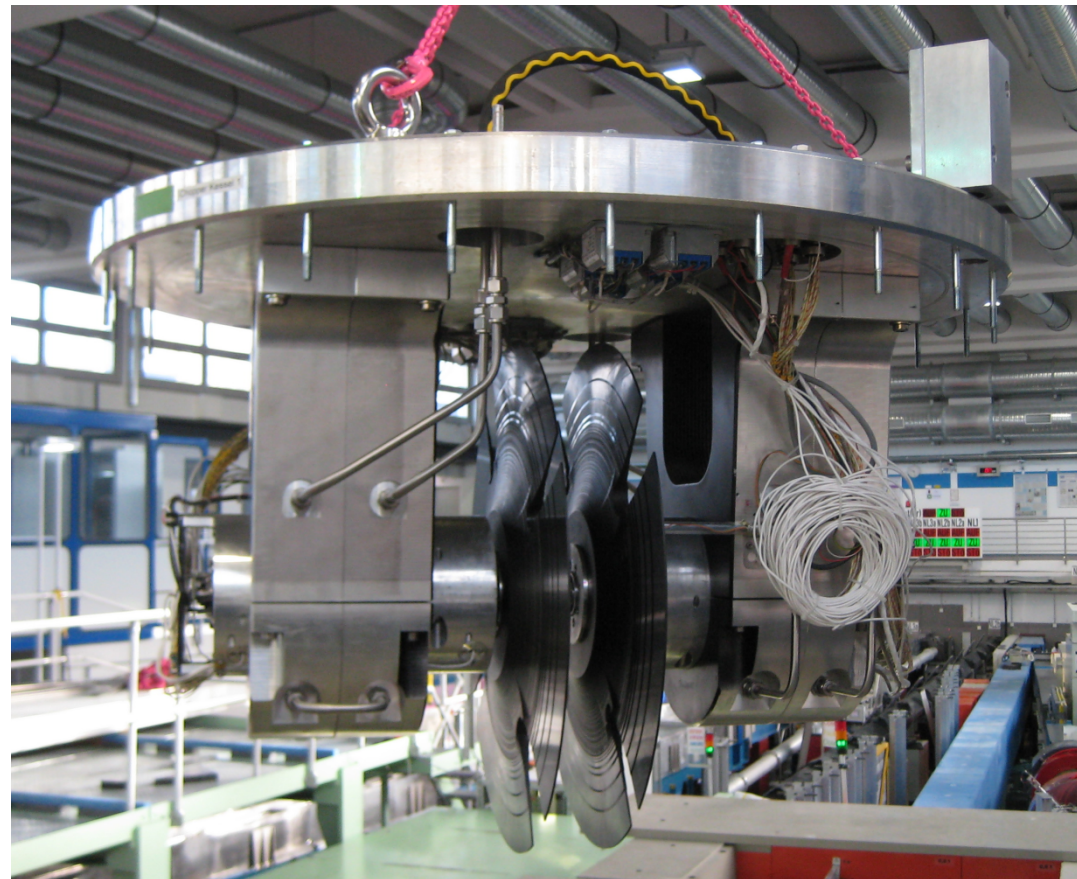


Choppers: Disks and Systems



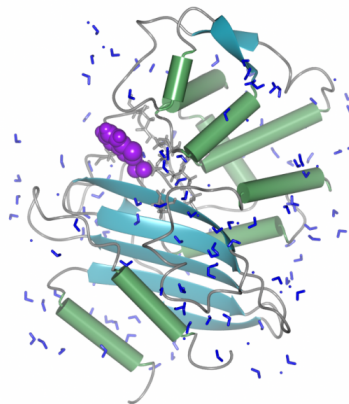
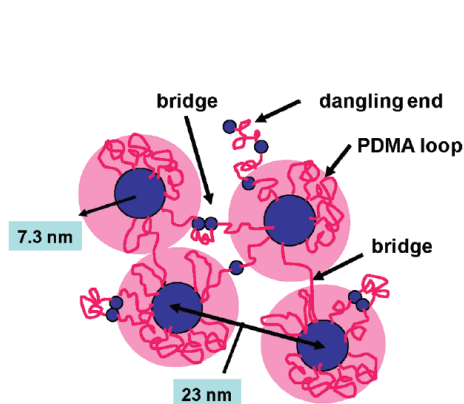
Collaboration with:
Lehrstuhl für Leichtbau, TUM

System integration and support:
ASTRIUM

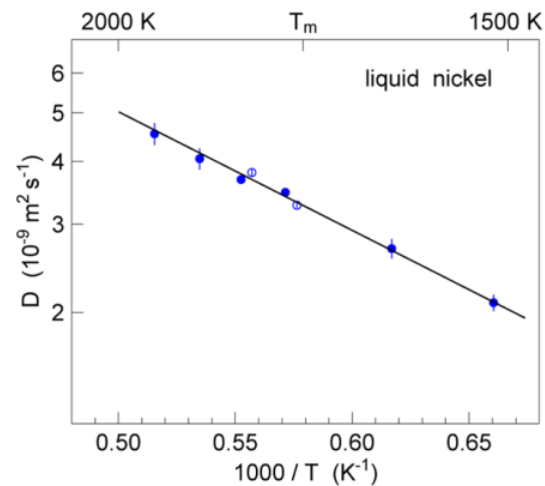
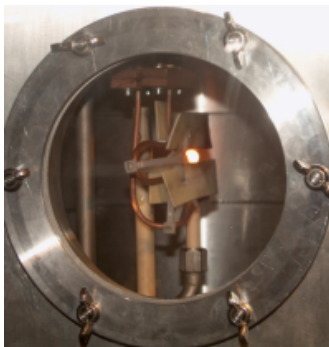
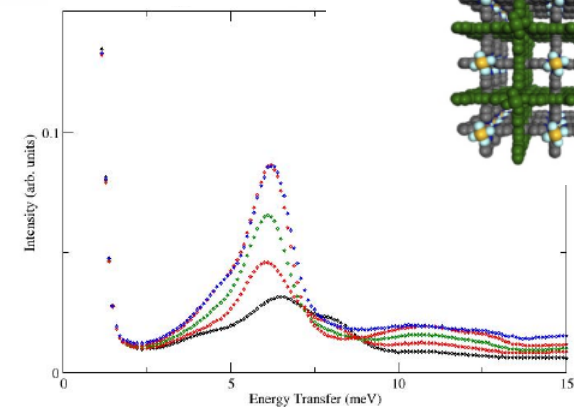
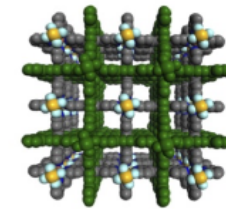


C-SPEC

High resolution time-of-flight spectrometer at the ESS



$[\text{Cu}(\text{bpa})_2(\text{SiF}_6)]_n$
(2-fold interpenetrated), 2

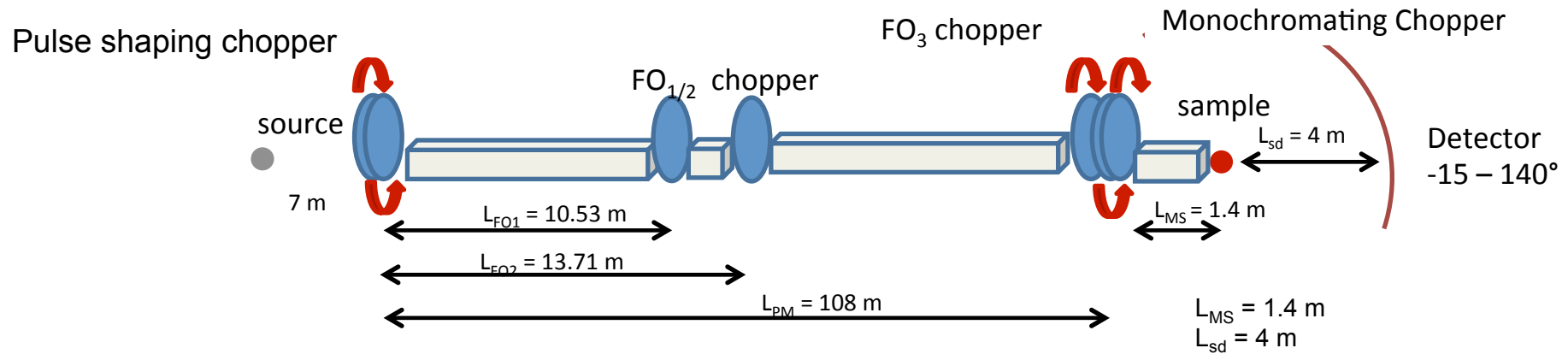


GEFÖRDERT VOM

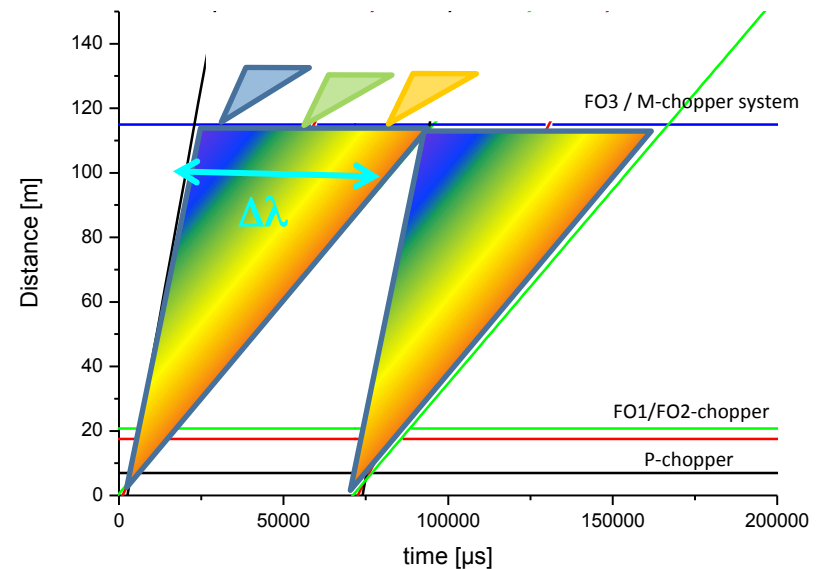


Bundesministerium
für Bildung
und Forschung

C-SPEC Instrument Layout



- Energy Resolution $\Delta E/E = 1 - 3 \%$
- Wavelength band
relaxed resolution: $\Delta\lambda = 2.6 \text{ \AA}$
high resolution: $\Delta\lambda = 1.96 \text{ \AA}$
- Multi energy option, 1 to N_2 pulses per source pulse ($N_2 \times 14$ Hz, rotation speed M-chopper)
- Single pulse option



Challenge Detector System: Detectors and Electronics



TOFTOF:

1000 single detectors

Preamplifiers

Digital electronics

Software/system integration