High Flux Reflectometry and Energy Analysis

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Motivation: Task 1

Increase Efficiency of Reflectometers:

- EASYREF: multilayer monochromators after sample
- REFOCUS: combine graded mono with elliptic shape

Challenges:

- diffuse scattering from multilayers
- increase reflectivity
- adjustment of beam divergence
- focusing
- length of substrates

Contributions TUM / FRM II

Hardware:

- Beamlines TREFF and MIRA:
  - o specular, diffuse scattering
  - o device characterization

- DC-magnetron sputtering plant:
  - o length of substrates L = 1m

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Hardware:

- Beamlines TREFF and MIRA:
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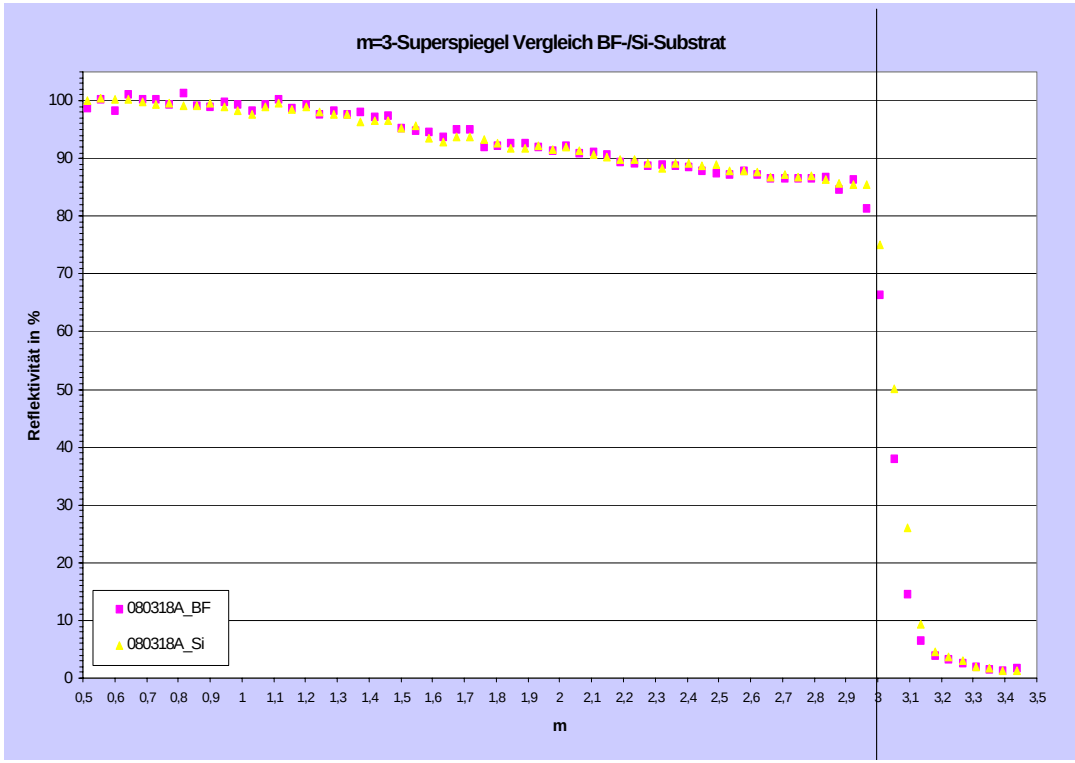
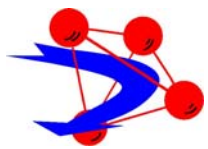
  - o length of substrates L = 1 m
  - o $m > 3$



- Expertise in Monte-Carlo simulations:
  - o McStas

Collaborations

Topics:	**Collaboration with**
• diffuse scattering / graded multilayers:	PSI
o increase R → bandpass monochromators	
o E-analysis → graded bandpass (may replace velocity selector)	
• adjustment of beam divergence: (see also adaptive optics)	PSI
• focusing:	PSI
• simulations:	UCPH
• design of devices:	LLB, ILL, PSI
• length of substrates:	LLB, PSI
• implementation (reflect., SANS, ..)	LLB, ILL, PSI



UCPH