

## applications:

- **EUV detector linearity testing**
- **EUV detector lifetime testing**
- **EUV optics lifetime testing in controlled atmosphere up to 0.01 mbar \***
- **EUV reflectometry with high accuracy, high spatial resolution**

\* Mertens, et al. Proc. SPIE 5037, 95-102 (2003)

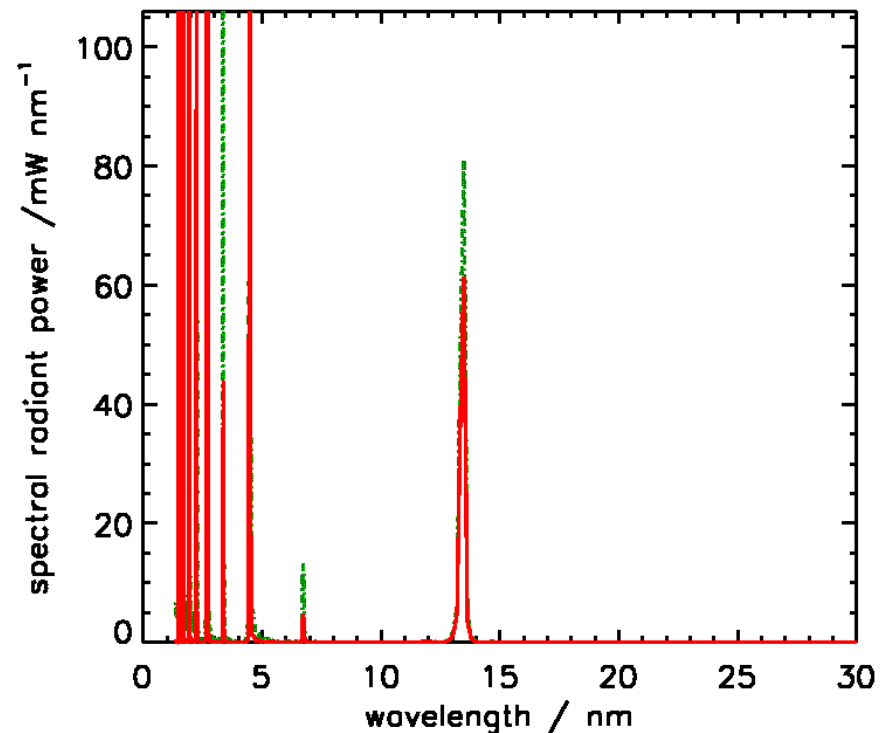
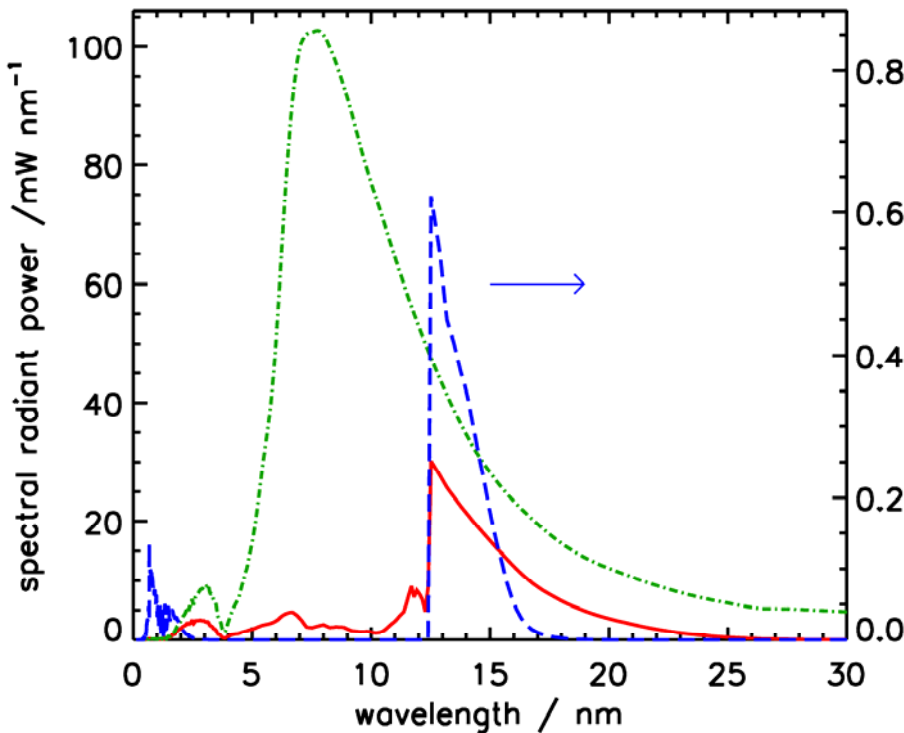
# High power density EUV irradiation testing

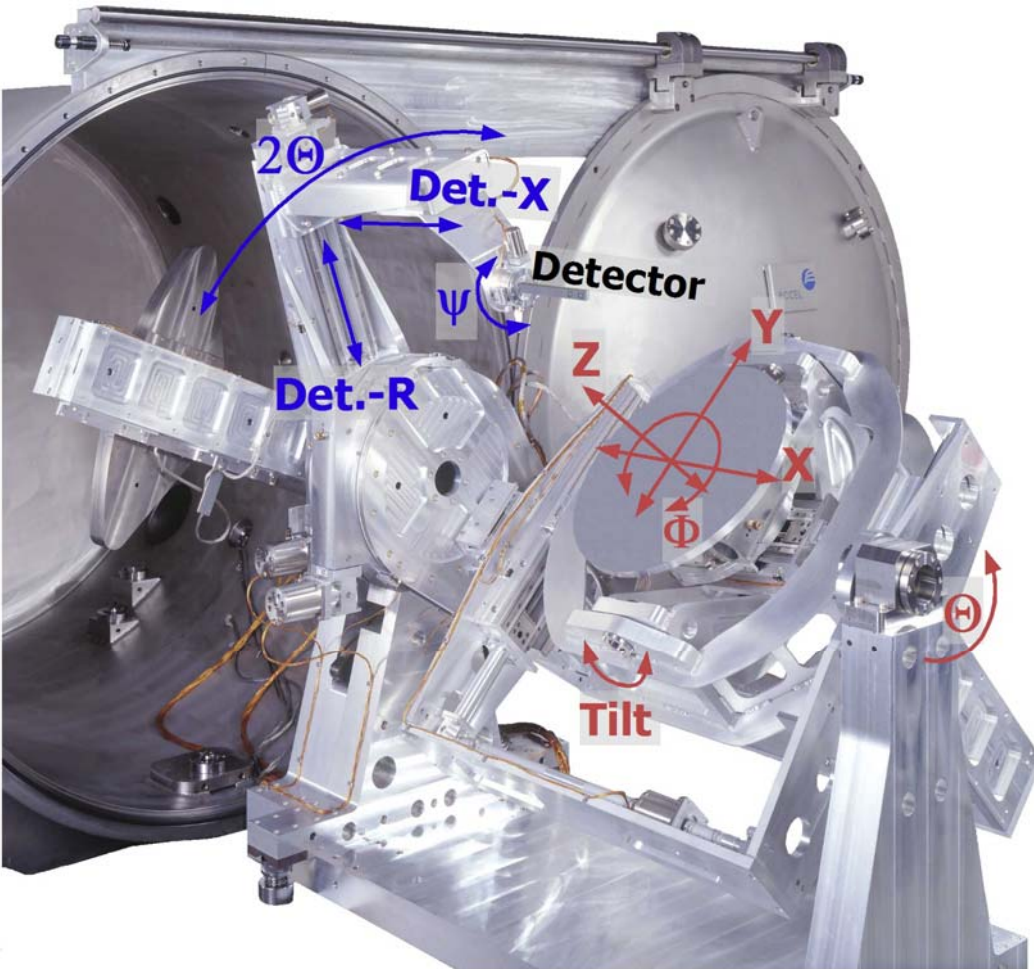
**bending magnet** **undulator**  
/mW • cm<sup>-2</sup> /mW • cm<sup>-2</sup>

**total power**  
**EUV (no filter) 12 nm to 16 nm**  
**EUV, 2% BW**  
(after EUV-mirror reflection)

**22000**  
**3700**  
**73**

**21800**  
**2100**  
**1000**





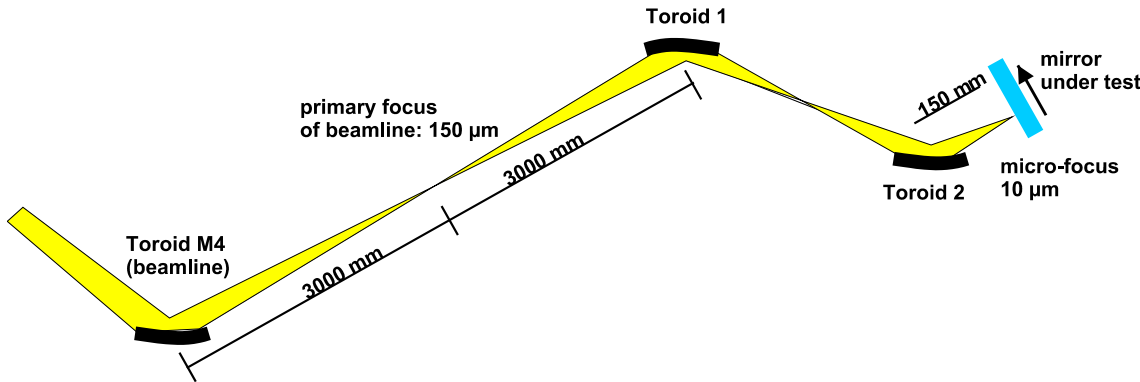
## PTB reflectometry facility\*

- 50 kg sample mass
- 550 cm diameter
- peak reflectance  
0.1 % absolute uncertainty  
0.05 % reproducibility
- peak wavelength  
2 pm absolute uncertainty  
1 pm reproducibility  
0.06 pm repeatability \*\*  
routine reference to Kr  $3_d-5_p$  \*\*

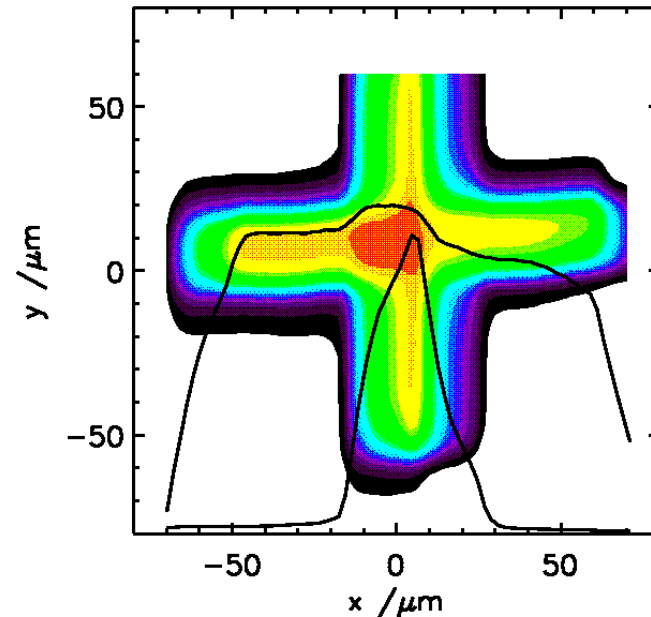
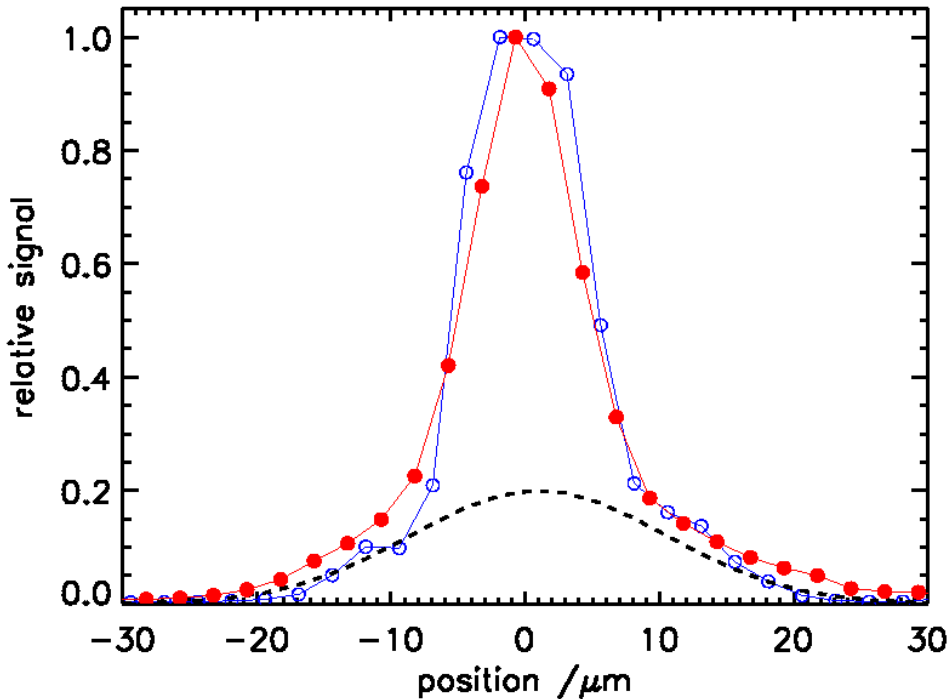
\*: J. Tümmler, et al., Proc. SPIE 5037, 265-273 (2003)

\*\* : Frank Scholze, et al., SPIE ML5751-88 (2005)

## PTB Micro-reflectometry facility



- up to 6" square sample
- 10  $\mu\text{m}$  spatial resolution
- peak reflectance, wavelength cross checked with EUV reflectometer



- **benchmark testing facilities**  
    **divide / extend parameter space**
- **testing of known neutral ML**
- **develop scaling laws for oxidation of different materials**