

Test stand for optical characterization of grazing incidence collectors

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Introduction

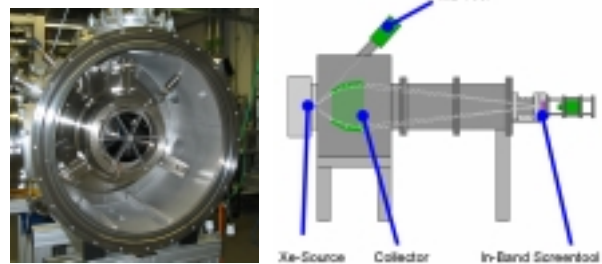
Aims :

- Measurement of transmission of GI-Collectors
- Measurement of IF and Far Field Distribution
- Measurement of absolute Photon Flux at IF

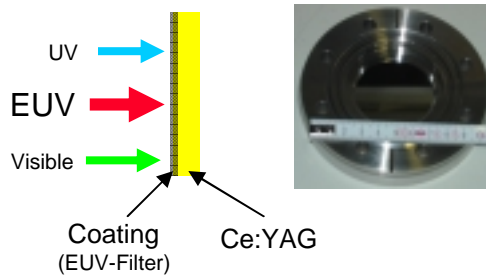
Method/Setup :

- Converter screen based on coated Ce:Yag
- Calibration against Inband EUV - monitor
- Use of a pinch plasma source

Experimental Set-up

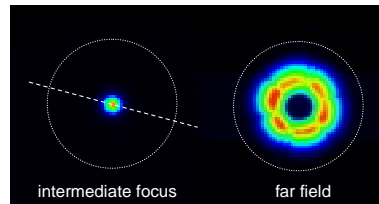


Converter Screen



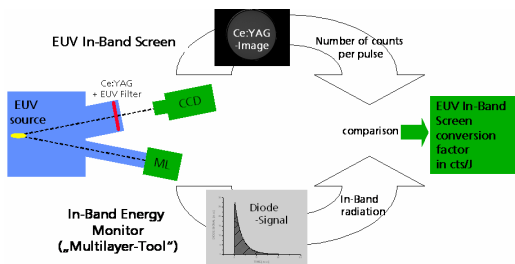
IF Images

Ru coated double shell collector

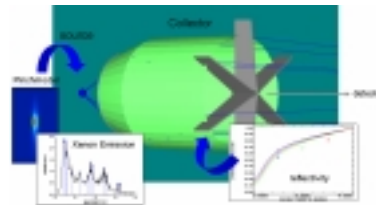


182 mm distance to IF

Calibration strategy



Ray tracing for collector transmission



Input for ray tracing calculations based on sample measurements with same fabrication conditions

Results

Measured and calculated collector transmission :

- Au - single shell : $38,2\% \pm 1,4\%$ (calc. $38,3\% \pm 1,5\%$)
- Ru - single shell : $53,8\% \pm 1,9\%$ (calc. $53,4\% \pm 2,1\%$)
- Ru - double shell : $50,7\% \pm 1,8\%$ (calc. $52,3\% \pm 2,1\%$)

*Collector with galvanic Ru-coating. Present PVD Ru coating improves transmission of about 20%

Summary

- Reproducibility for transmission measurements : < 2 %
- Reproducibility for calibration factor : < 2 %
- Excellent agreement for measured and calculated transmission

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