

Development and calibration of beamsplitters for use on interferometry at 13.9 nm.

S. Hubert[%], F. Delmotte[†], M.F. Ravet[†], F. Bridou[†], M. Idir^{*}, G. Soullie^{*}, G. Cauchon[#], Ph. Zeitoun[%],
B. Agius[†]

[%] Laboratoire de Spectroscopie Atomique et Ionique, Bât. 350 centre scientifique - 91403 Orsay,

[†] Laboratoire Charles Fabry de l'Institut d'optique, Bât. 503 centre scientifique- 91403 Orsay,

^{*} Commissariat à l'Énergie Atomique, Centre d'étude- BP 12, 91680 Bruyères-le-Châtel,

[#] National Institute of Standards and Technology, Radiation Physics Division, bureau DR Stop 8410,
Gaithersburg MD 20899-8410

In this paper we present the development of a soft X-ray Michelson interferometer for the aim of probing laser-produced plasmas with a 13.9 nm x-ray laser. This kind of interferometer is based on dividing the incoming X-ray beam onto two beamlets with the help of a x-ray beamsplitter.

The beamsplitter is made of a multilayer film coated onto a very thin x-ray transparent substrate (membrane). The membrane is consisted of silicon nitride 100 nm thick. Numeric simulations were done to determine the right coating conditions for the best compromise between reflectivity and transmittivity. Several multilayer Mo/Si coatings have been experimentally investigated aiming in these conditions to achieve the highest beamsplitter flatness.

The first results on beamsplitters calibration (X-ray transmittivity and reflectivity, flatness) will be shown and discussed.