Plasma assisted electron beam deposition system

SYRUSpro 710 – Bühler/Leybold Optics

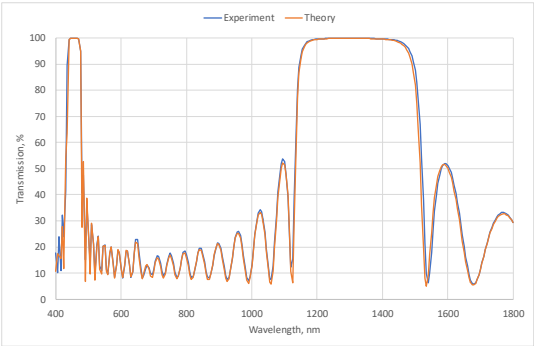
The SYRUSpro 710 machine is a physical vapor deposition machine with advanced plasma source, allowing the fabrication of high performances optical interference filters and microstructured components. Two systems are available allowing to cover a wide range of possible deposited materials including oxydes, metals or chalchogenides. Accurate control of their optical properties is possible thanks to dedicated optical monitoring systems.

Technical specifications

- Up to 20 sample holders with 100 mm diameter or 4 samples with 200 mm diameter
- Coating uniformity within 1% over 100 mm diameter
- 2 processing zones
    - 1 (or 2) electron beam guns for material evaporation
    - 1 Advanced Plasma Source (APS) for dense layer fabrication
- Live in-situ optical monitoring of the depositions (transmission measurement)
- Available materials: SiO_2, Nb_2O_5, TiO_2, HfO_2, As_2S_3, GST, Sb_2Te_3, Sb_2Se_3, Ag, Al, Au, Cu, Ti… (non-exhaustive list)

Realizations

Example of realization of a highly reflecting mirror for infrared wavelengths



Field of applications

The SYRUSpro deposition machine allows manufacturing a wide range of optical components including pixelated filters, colorimetric structures, filters and metasurfaces based on phase change materials, highly non-linear layers… for a wide range of applications including space, high power lasers, biology, medical, automotive, safety, luxury…

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