respect to the theoretical value is related to the drop of experimental reflectance peak at 6.67 nm. To combine both the highest reflectivity of La/B_4C both the high rejection capability of the Pd/B_4C capping layer, it could be useful to make a further step toward a new solution, based on a combination of three material: a La/B_4C multilayer on top of which is deposited a Pd/B_4C capping layer. In this case a theoretical peak reflectance of 69% could be obtained with a calculated FRR of ~1500. The validation of any coating for FERMI@Elettra will required the analysis of thermal and irradiation stability, which has not experimentally addressed yet. Up to now, in fact, stability of multilayer under a FEL beam has been investigated mostly on Mo/Si based multilayer systems, using other facilities as FLASH in Hamburg [18]. Considering that FERMI@Elettra has different beam properties in term of pulse time duration and brilliance, it would be fundamental to carried out such type of experimental analysis on all different multilayer structures adopted in the beam transport system and experimental chambers. In the specific case of the Pd/B_4C, it is expected to be eventually used along a section in which the FERMI@Elettra beam is collimated, with an expected energy density of 4.5 mJ/cm^2; this energy density should be actually lower than the damage threshold determined for Mo/Si based multilayer, being such density ~45 mJ/cm^2 for a 10 fs single shot pulse at 13.5 nm. This experimental kind of tests will be object of a future research at FERMI@Elettra.

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