Abstract Submitted
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In-line plasma cleaning of EUV multilayer mirrors[1] EVDOKIM MALYKHIN, OLEG BRAGINSKY, ALEXANDER KOVALEV, DMITRY LOPAEV, ALEXANDER RAKHIMOV, TATYANA RAKHIMOVA, ANNA VASILIEVA, SERGEY ZYRYANOV, Nuclear Physics Institute, Moscow State University, KONSTANTIN KOSHELEV, VLADIMIR KRIVTSUN, OLEG YAKUSHEV, Institute for Spectroscopy RAS, Troitsk — Lifetime of multilayer mirrors (MLM) is one of the most important issues in EUV lithography. Carbonization and oxidation under EUV radiation is main reasons of MLM degradation. Methods developed for remote MLM cleaning such as cleaning by H atoms solve this problem partly. The most appropriate way is to create such conditions that MLM surface will remain clean during the lithographer operation time (∼30000 hours). This work is devoted to studying the possibility of in-line MLM cleaning by EUV-induced plasma over the MLM surface. Experiments with low-pressure plasma jet of RF SWD and with 13.5 nm EUV-induced plasma were carried out. It was shown that H_3^+ and He^+ ions coming to MLM surface can provide enough cleaning rate to keep the surface clean without any observable degradation.

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