

About the Cover:

Semyon Papernov, a scientist in the Optical Technology Group, uses a Digital Instruments Nanoscope III atomic force microscope (AFM) operated in contact mode to evaluate the morphology of 3ω laser-damage features on a multilayer, quarter-wave-stack OMEGA transport HR coating made from HfO_2 and SiO_2 . Surface mapping of damaged and undamaged sites on production witness pieces by atomic force microscopy has shown that nodular growth defects, long considered to be the dominant laser-damage driver in dielectric thin films, can remain unaffected under 351-nm irradiation conditions, while other defect-driving mechanisms dominate damage crater formation in the immediate vicinity of the nodules.

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