

Abstract Submitted
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Nano-scale resolution full-field microscopy using tabletop extreme ultraviolet lasers FERNANDO BRIZUELA, COURTNEY BREWER, GEORGIY VASCHENKO, YONG WANG, MIGUEL LAROTONDA, BRADLEY LUTHER, MARIO MARCONI, JORGE ROCCA, CARMEN MENONI, Colorado State University, WEILUN CHAO, YANWEI LIU, ERIK ANDERSON, DAVID ATTWOOD, University of California, Berkeley, ALEXANDER VINOGRADOV, IGOR ARTIOUKOV, P. N. Lebedev Physical Institute, Moscow, Russia, YURI PERSHYN, VIKTOR KONDRATENKO, National Technical University “KhPI”, Kharkov, Ukraine — We have developed two compact full-field extreme ultraviolet (EUV) microscopes that combine short-wavelength light from high-brightness tabletop lasers with zone plate and multilayer-coated reflective optics. One of these systems uses 47 nm wavelength light from a desktop-sized capillary discharge laser with resolution down to 70nm. This microscope can image in both transmission and reflection mode, allowing for imaging of surfaces. The other microscope uses 13 nm wavelength light from a table-top optically pumped EUV laser to acquire images with spatial resolution better than 38 nm. Both of these systems have the ability to render images with typical acquisition times of 10- 30 seconds. These results open a path to the development of compact and widely available extreme-ultraviolet imaging tools capable of inspecting samples in a variety of environments with a 15-20 nm spatial resolution and a picosecond time resolution.

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