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Extreme ultraviolet photonics on a table-top[1]

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With wavelengths of a few to tens of nanometers extreme ultraviolet (EUV) light is being exploited in a rapidly increasing number of scientific and technological applications, from imaging to spectroscopy, to the lithography of semiconductor chips with 13.5 nm wavelength light. Recent advances in the generation of bright EUV/SXR laser beams on a table top are opening unique opportunities to advance photonics in this challenging and relatively unexplored region of the electromagnetic spectrum. This talk will describe results of efforts at Colorado State University on the generation and utilization of EUV/SXR lasers for nanoscale structural and molecular imaging. These photonic applications are making possible the imaging of nanostructures and their dynamics, and the three dimensional nanoscale mapping of the chemical composition of single cells providing new opportunities to access and probe the nanoworld.

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