Nanophotonics at Extreme Ultraviolet Wavelengths

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By virtue of its nanometer-scale wavelength, extreme ultraviolet (EUV) and soft X-ray (SXR) light are naturally suited for nano-photonics applications. This talk will describe advances in the generation of bright table-top EUV/SXR laser beams and in their implementation in ultra-high resolution imaging, chemical imaging, and defect-tolerant nano-patterning methods. Emphasis will be given to the description of extreme ultraviolet laser ablation mass spectrometry. The capability of this method to map elemental and molecular composition with nanoscale spatial resolution in three dimensions and its high sensitivity opens numerous opportunities for investigating, for example, catalysis at nanoscale dimensions and chemical heterogeneity in nanostructures.