

レーザー駆動プラズマから放射される極端紫外光および真空紫外光集光光学系の比較研究
Comparison of focusing optics for extreme vacuum ultraviolet and vacuum ultraviolet
emission from laser produced plasma

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Extreme ultraviolet (EUV) and vacuum ultraviolet (VUV) technology offer a wide range of benefits and have a large number of practical applications across a wide variety of sectors, such as EUV-VUV imaging, EUV-VUV spectroscopy, EUV Nano-machining and so on. In laboratory scale, laser-produced plasma (LPP) is often used as EUV-VUV light source owing to the short-pulse (nanosecond), high-temperature (10-100 eV), and high-density ($\sim 10^{21} \text{ cm}^{-3}$) plasma with continuous spectrum. By collecting the radiations, material ablation associated with plasma production by intense pulsed EUV-VUV is possible, and it has many unique applications. Thus, it is important to establish effective focusing optics that can collect EUV-VUV light with high collection efficiency.

We have developed two types of EUV-VUV focusing optics, ellipsoidal focusing optics and Schwarzschild objective (SO) with SiC. Experimental and ray-trace simulation studies validated the total collection efficiency and characteristics of the focusing for each focusing optic system. The detailed results of comparison study will be presented in the talk.