

**Soft X-ray generation under the action of pico- and nanosecond laser pulses
on nano-structured targets.**

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It is well known that the energy transformation efficiency from femtosecond laser pulses to XUV emission may be enhanced by using nanostructured targets. Nanostructured surface and low density porous layers are often used to increase laser absorption and to control plasma density. Here, EUV emission spectra from targets with tin covered closely packed polystyrene microsphere monolayer on a foil and from porous alumina targets covered by a thin tin layer irradiated by 7 ns, 170 ps and 30 ps Nd:YAG lasers were recorded with a flat field grazing incidence spectrometer equipped with a variable groove spaced grating. We have investigated the variations of the emission spectra with the laser irradiance. The conversion efficiency into 13.5 nm spectral region was deduced. The emitted X-rays can be suitable for various applications such as a lithography and biological imaging.

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