



1. Title:	Temperature and density measurement of laser-produced EUV plasmas
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7. Abstract body:

In order to precisely benchmark EUV plasma simulations, it is of great importance to attain databases including density and temperature profiles of EUV dominant region created under various conditions. We developed a new plasma diagnostic method providing 2-dimensional (2D) profiles of the electron density and temperature of the laser-produced Sn plasma. The electron density profile was observed with laser-interferometry and the electron temperature was by absorption image of a probe-light due to inverse bremsstrahlung. A Sn planar foil was irradiated with a 2 ns, 1064 nm YAG laser pulse at 5×10^{10} W/cm². The electron density profiles were taken at -1 ns, 0 ns, +2 ns and +5 ns from the laser peak. The experimental results show that the electron density profiles are expanding with time and the peak value of the electron density at measurable region was $2-3 \times 10^{19}$ cm⁻³. The electron temperature profile was taken at +5 ns from the intensity peak of the heating laser. The measured value of the electron temperature at measurable region was 30-40 eV. These results are compared with 2D simulations.

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