

Influence of drive pulse duration on EUV emission properties in laser produced tin plasma



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Photographs of Chamber and SBS Compressor



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Chamber

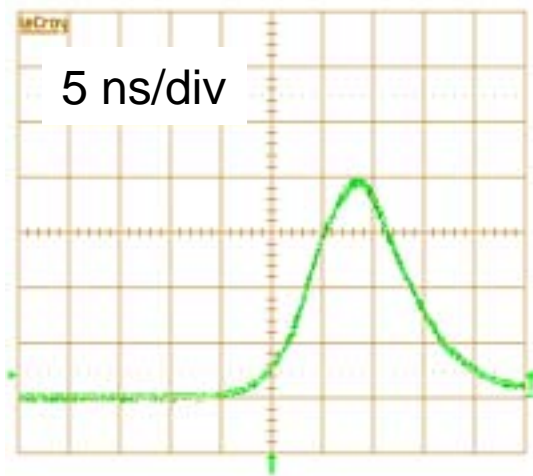


SBS compressor

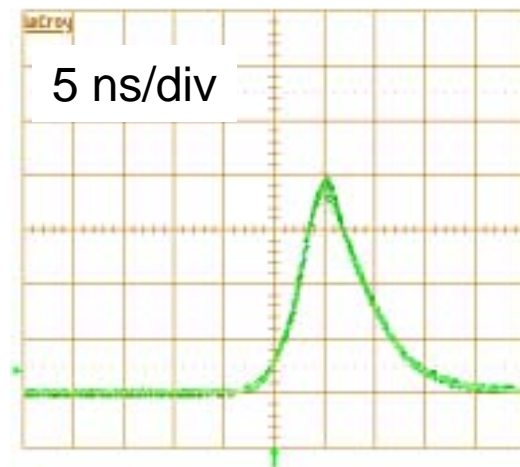
Pulse duration depend on applied voltage to flash lamp



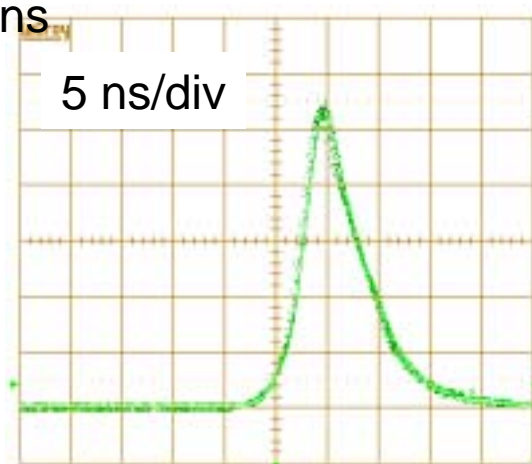
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Pulse duration 10.6 ns



Pulse duration 7.2 ns

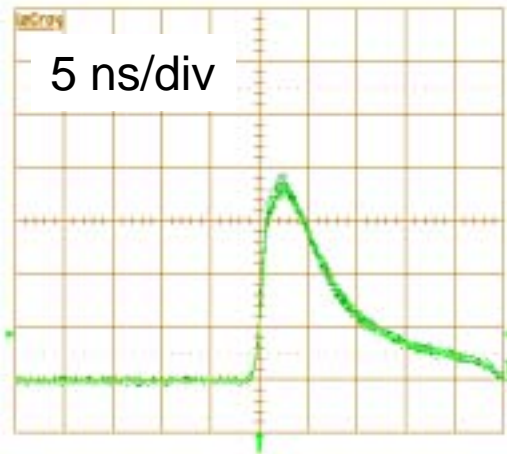


Pulse duration 6.0 ns

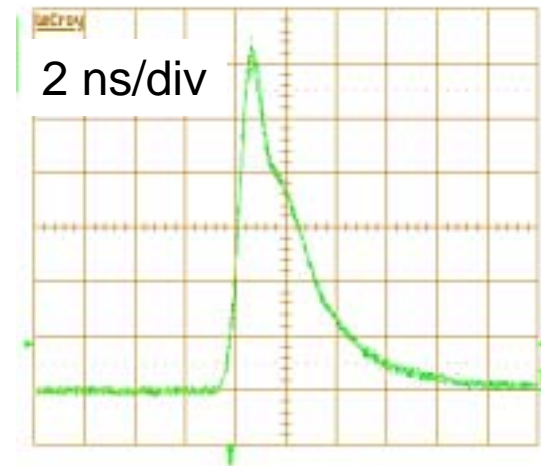
Pulse duration depend on applied voltage with SBS compressor using focusing lens of f/1800



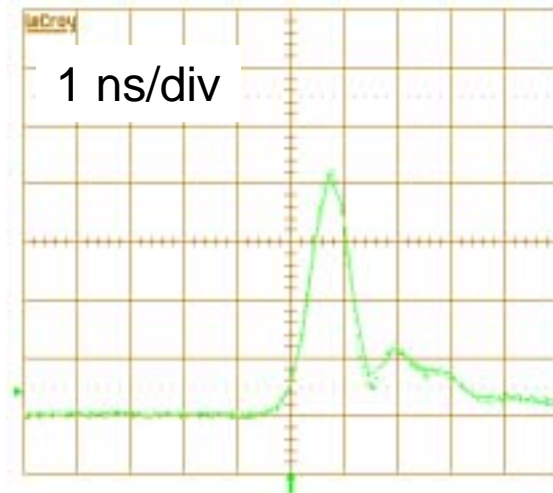
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Pulse duration 7.8 ns



Pulse duration 2.3 ns

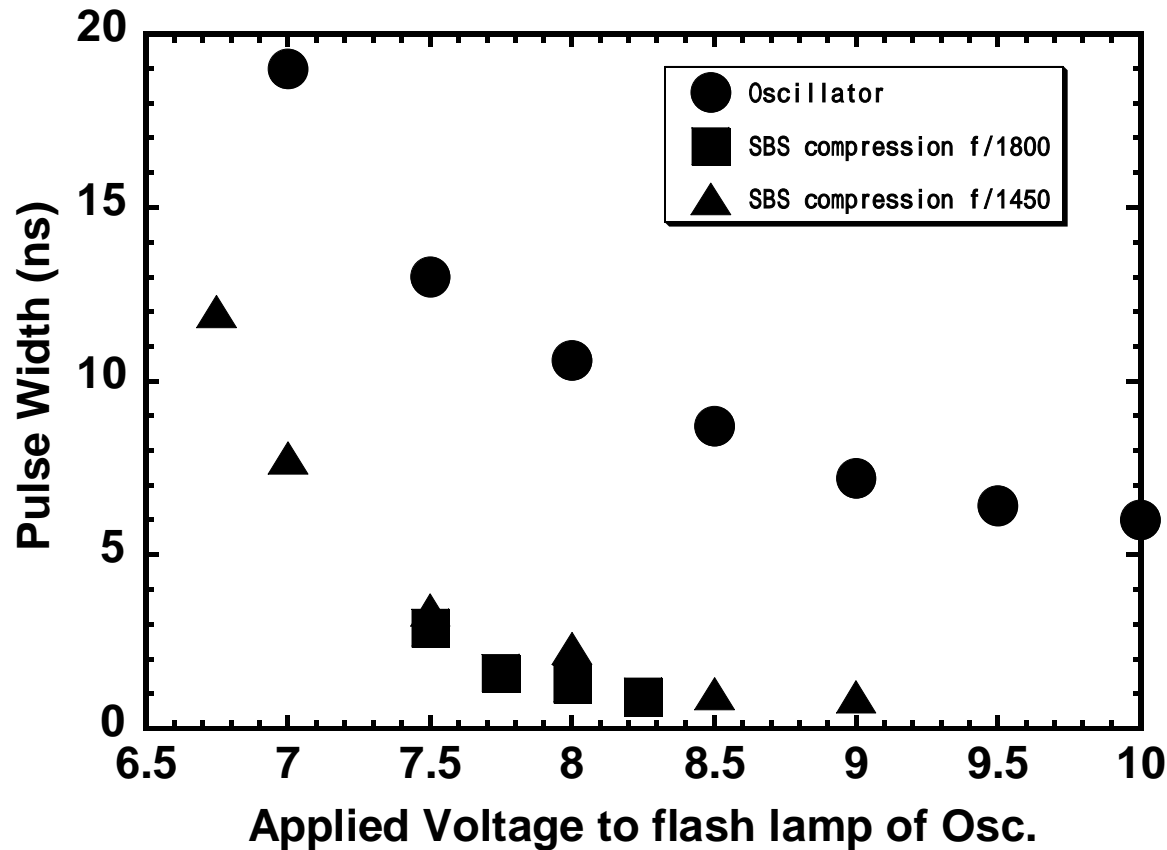


Pulse duration 0.9 ns

Pulse duration were changed by applied voltage with SBS compressor



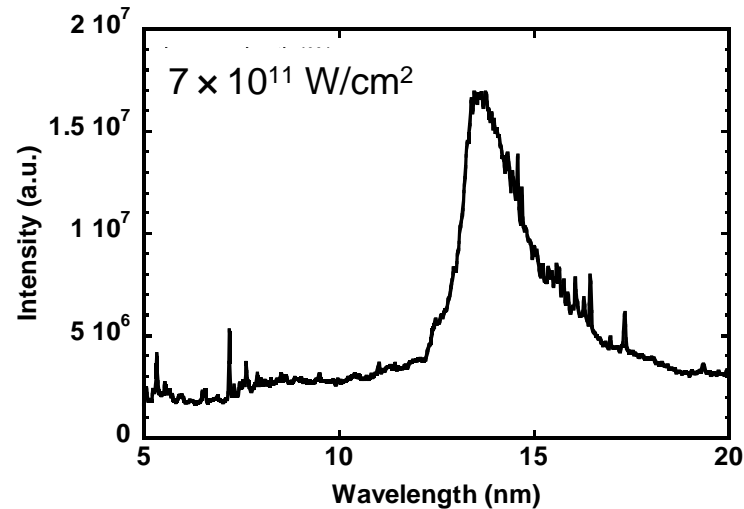
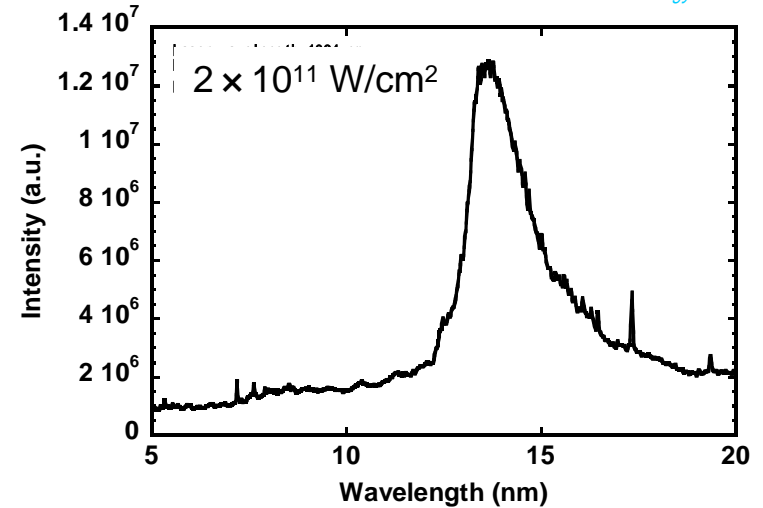
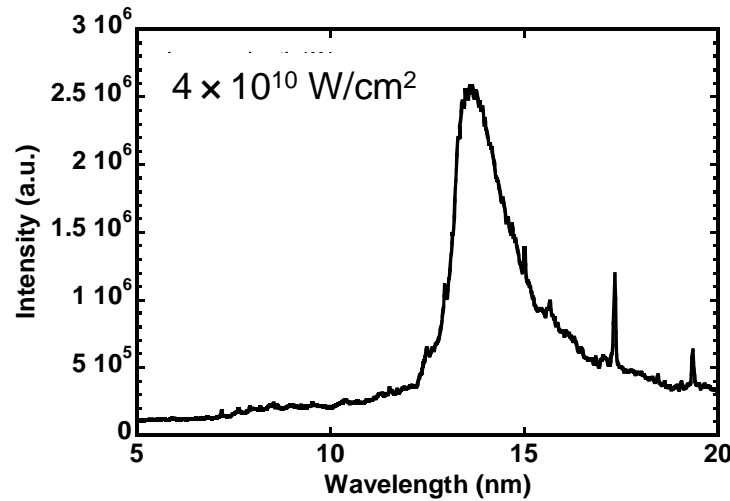
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Spectrum from tin target irradiated 1-2.5 ns pulse duration laser



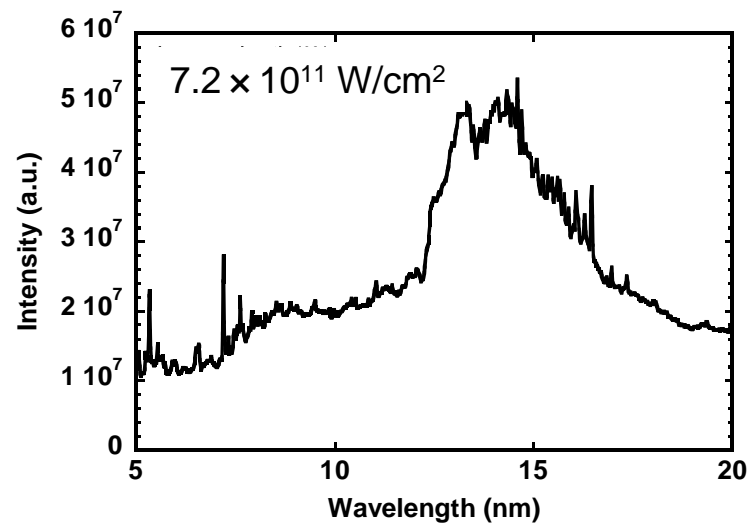
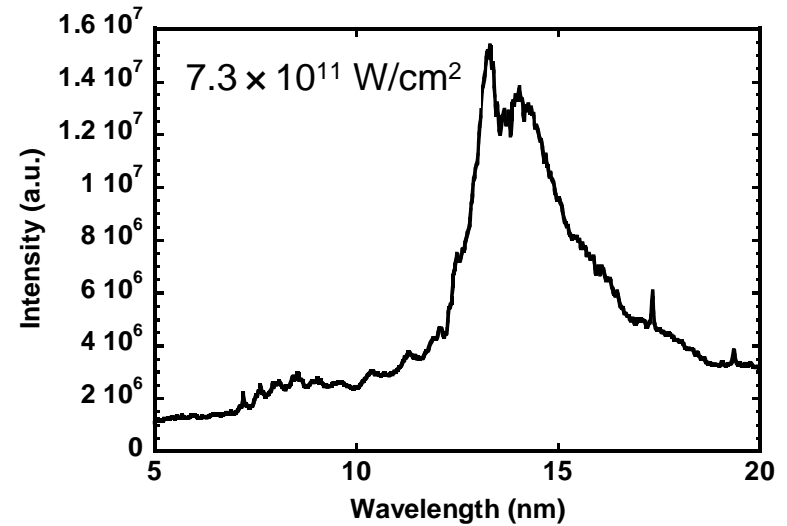
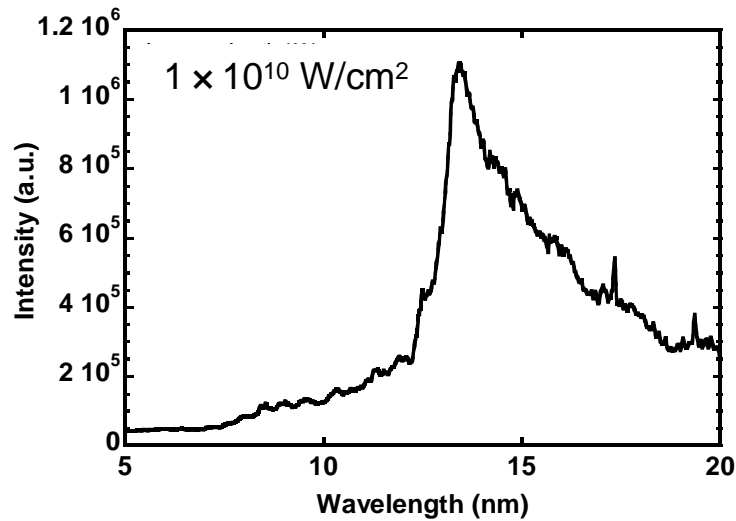
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Spectrum from tin target irradiated 10-11 ns pulse duration laser



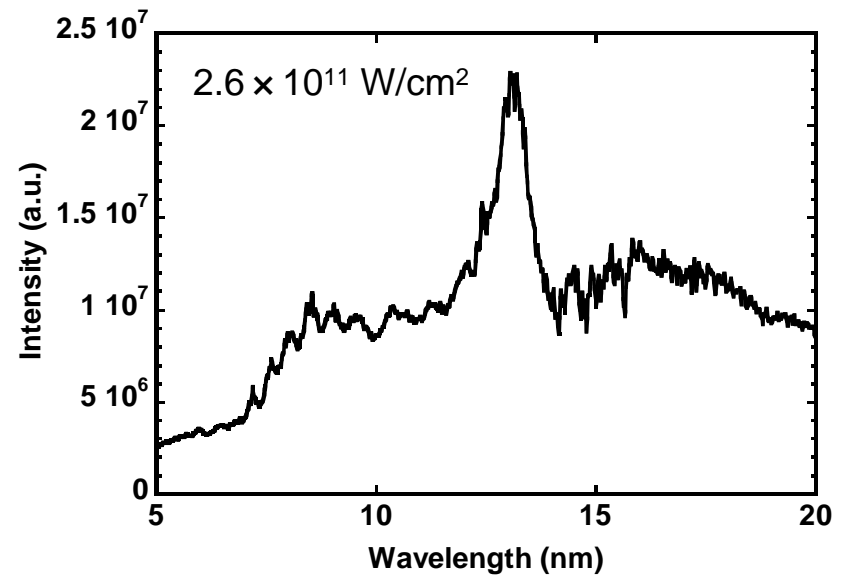
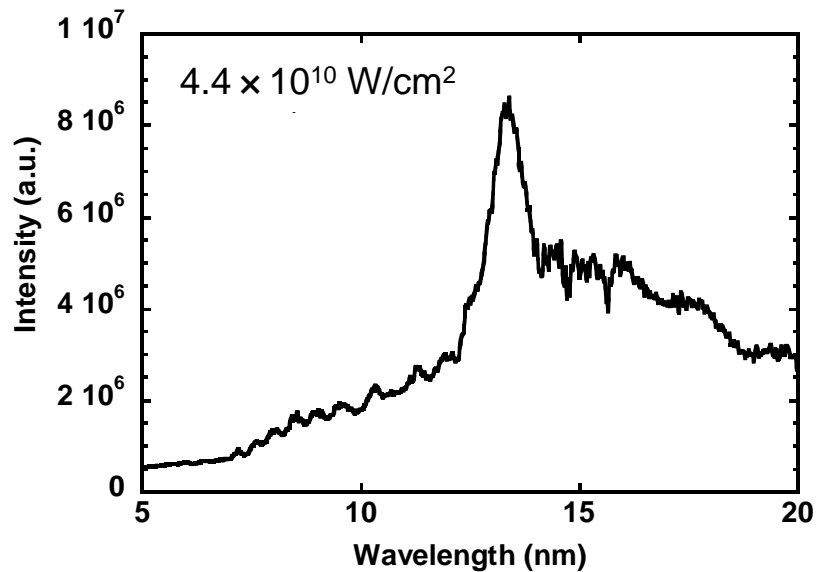
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Spectrum from tin target irradiated 19-20 ns pulse duration laser



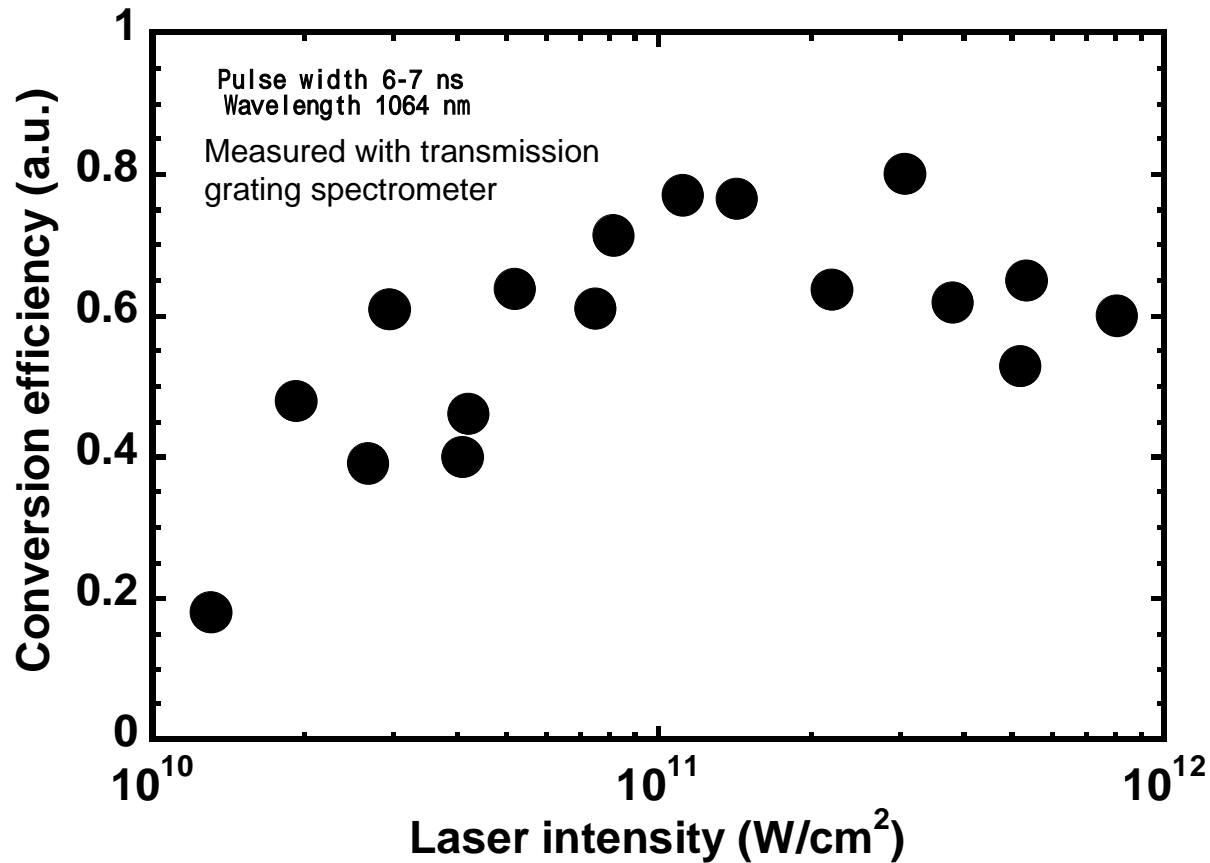
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Conversion efficiency irradiated 6-7 ns pulse duration laser depend on laser intensity



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Summary



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•The spectrum from tin plasmas irradiated at 1064 nm wavelength were changed by laser pulse durations. While shorter pulse duration irradiation, for instance 1 to 2.5 ns, the spectrum was not change drastically. The other side, with 19 to 20 ns pulse duration irradiation, the spectrum surely changed. In particular, the sideband of 13.5 nm wavelength were gained due to satellite emission increase.