Abstract Submitted
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Time resolved EUV spectra from Zpinching capillary discharge plasma[1] ALEXANDR JANCAREK, MICHAL NEVRKLA, FAHAD NAWAZ, Czech Technical University in Prague — We developed [1] symmetrically charged driver to obtain high voltage, high current Z-pinching capillary discharge. Plasma is created by up to 70 kA, 29 ns risetime current pulse passing through a 5 mm inner diameter, 224 mm long capillary filled with gas to initial pressure in the range of 1 kPa. Due to the low inductance design of the driver, the pinch is observable directly from the measured current curve. Time-integrated and time-resolved spectra of discharge plasma radiation are recorded together with the capillary current and analyzed. The most encouraging spectra were captured in the wavelength range $8.3 \div 14$ nm. This spectral region contains nitrogen Balmer series lines including potentially lasing NVII 2 – 3 transition. Spectral lines are identified in the NIST database using the FLY kinetic code. The line of 13.38 nm wavelength, transition NVII 2 – 3, was observed in gated, and also in time-integrated spectra for currents >60 kA.

[1] Nevrkla, M., Jancarek, A., Nawaz, F.: Discharge driver for 13.4 nm XUV laser, 2013 19th IEEE Pulsed Power Conference, PPC 2013; San Francisco, CA; United States; 16 June 2013 through 21 June 2013; Code 101034

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