

130 W, 240 MW, 30 fs laser oscillator for XUV generation

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High peak-power thin-disk oscillators with MHz repetition rates promise compact and simple sources for XUV generation. In our group, oscillators with output power of 270 W and peak power of 60 MW demonstrated with the pulse duration ranging from 300 fs to 140 fs. Novel all solid state fiber-free concepts on spectral broadening allow further compression down to 30 fs pulses with efficiencies on the order of 90%. A goal of this work is to further shorten pulses from KLM Yb:YAG thin-disk oscillators to achieve 10 fs pulse duration and average powers within the range of 200-300 W. This laser oscillator is a very attractive source for XUV frequency comb generation and metrological applications in the 50-150 nm wavelength range. Simplicity, robustness and compactness of the source makes it highly competitive to enhancement cavities and different amplifiers.