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【201】Kerr lens mode-locked femtosecond thin-disk lasers: towards powerful sub-50 fs oscillators

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Thin-disk laser (TDL) oscillators generate directly ultrashort pulses at megahertz repetition rates and high average powers. Achievable peak powers in the mega-watt level make it a promising driver for nonlinear experiments. Recent progress of mode locking via the Kerr effect enabled the generation of pulses with durations as short as Yb-doped bulk oscillators. We present the status about our Kerr lens mode locked TDL of the gain materials Yb:Lu_2O_3 and Yb:CALGO, emitting the shortest pulses ever demonstrated by their gain materials and up to 40 % shorter than previous TDL, and discuss the potential for further power scaling.

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