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The previously unbelievable performance of ultrafast thin disk lasers (Presentation Video)

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The Previously Unbelievable Performance of Ultrafast Thin Disk Lasers (Presentation Video)

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ABSTRACT

Average power scaling in a thin disk geometry supports more than <10 kW from Yb-doped solid-state and <100 W from vertical emitting semiconductor lasers. Both lasers can be passively mode-locked with SESAMs pushing the performance frontier into a regime previously assumed to be impossible. A Yb-YAG thin disk laser generates femtosecond pulses with more than $80\text{ }\mu\text{J}$ pulse energy without any external pulse amplification. With semiconductor thin disk lasers (also referred to as VECSELs and MIXSELs) we can obtain <1 W average power with both femtosecond and picosecond pulses and a pulse repetition rates ranging between 100 MHz to 100 GHz.

View presentation video on SPIE's Digital Library: <http://dx.doi.org/10.1117/12.2048382>