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

Ursula Keller, ETH Zurich (Switzerland)

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 μJ pulse energy without any external pulse amplification. With semiconductor thin disk lasers (also referred to as VECSELs and MIXSELs) we can obtain <1W 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

Vertical External Cavity Surface Emitting Lasers (VECSELs) IV, edited by Jerome V. Moloney, Proc. of SPIE Vol. 8966, 896602 · © 2014 SPIE
CCC code: 0277-786X/14/$18 · doi: 10.1117/12.2048382