LAPHIA
Laser & Photonics
in Aquitaine

université de BORDEAUX

Cluster of Excellence LAPHIA
Seminar

« Latest advances in thin-disk laser technology »

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Abstract :

Since its invention in 1994 at the Institut für Strahlwerkzeuge of the University of Stuttgart, the thin disk laser has developed into a well-established tool for industrial laser material processing. In cw - operation thin - disk lasers are used for high - power and therefore highly productive welding and cutting applications. In the rapidly growing field of material processing with ultrashort laser pulses the thin - disk laser proves to be a very competitive and promising concept, too. The main advantage of the thin - disk architecture is the very efficient cooling concept leading to an excellent power scalability. Following theoretical considerations, in cw – operation output powers of up to 40 kW and in pulsed operation more than 3 J of pulse energy could be extracted from a single disk. After a brief introduction to the thin-disk laser concept, the present seminar will give an overview of the latest achievements in the thin-disk laser development in cw and pulsed regimes including oscillator and amplifiers architectures.

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