MATTER AND TECHNOLOGIES

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Latest results of multicore fiber laser systems

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Fiber laser systems are reputed for being able to provide emission at high average powers while keeping nearly diffraction-limited beam quality. However, achieving pulsed operation with high energies and peak-powers has traditionally been a challenge due to the small confinement of the light in the fiber causing the onset of nonlinear effects. Parallelization of the amplification process allows to overcome this limitation. Multicore fibers, have potential to allow for laser systems with a massive number of amplification channels while maintaining a compact footprint and manageable component count. In this contribution, we will present our latest results achieved with different type of multicore fibers. This includes the conversion of nanosecond pulses to the second harmonic. Additionally, dynamic beam shaping can be achieved with femtosecond pulses by fast phase-only control of the individual beams emitted by the fiber. Finally, we will also present the first multicore fiber with multi-kW average power capabilities. Systems based on these fibers will have a wide variety of applications, ranging from pumping future Ti:Sa laser systems to the generation of EUV and x-ray radiation.

Speed talk:

I am unwilling/unable to present a speed talk

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