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Electro-optically controlled divided-pulse amplification in fiber laser systems

The amplification of multiple pulse replica in a burst results in an artificial increase of the effective pulse duration beyond the boundaries given by the pulse stretcher and compressor. Hence, limitations of the achievable pulse energy due to nonlinear effects and damage threshold can be overcome. We have developed an enhanced version of the known divided-pulse-amplification (DPA) technology that manipulates the pulses emitted by a laser oscillator using electro-optical modulators to generate a pulse train suitable for temporal pulse recombination after amplification. This approach has now been implemented into our multi-channel fiber laser system and we will present the achieved results.

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