

Motivation

By controlling the phase and amplitude of individual comb lines, it would be possible to synthesize optical field waveforms directly in a way similar to how electric pulse waveforms.

Originality

In order to resolve each mode of the frequency comb, a repetition rate of more than 10 GHz is necessary. We demonstrated generation of an octave-bandwidth spectrum using LD-based 25-GHz laser pulses for carrier envelop offset (CEO) locking.

Impact

Direct controlling the optical field waveform through precise control of the CEO-locked frequency comb is the key to developing new techniques for the creation of new material states.

