

Passively Phase-Locked Er:Fiber Frequency Comb

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Modern precision metrology ever more strongly relies on the availability of optical frequency combs. We review our approach to passive stabilization of the carrier envelope phase (CEP) of a pulse train at full repetition rate via difference frequency generation. Using this approach, we demonstrate a inherently offset-free Er:fiber comb directly locked onto an optical reference (^{85}Rb) together with a possibility of an actively narrowed sub-500 MHz linewidth. This performance highlights an attractive potential of robust all-fiber comb systems toward applications in ultrahigh-precision metrology.