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Reduced phase noise in an erbium frequency comb via intensity noise suppression[1] ADAM BRANDT, SAMUEL COOPER, ZAKARY BURKLEY, DYLAN YOST, Colorado State University — There is currently a demand for low noise erbium fiber frequency combs due to their low cost, alignment free nature, and insensitivity to environmental perturbations. Due to the correlation between the light amplitude and phase in optical fiber, active reduction of amplitude noise often also reduces the phase noise of the comb. In this talk, I will discuss our implementation of this technique for a frequency comb based on a slow saturable absorber mode-locked, erbium fiber frequency comb. We believe this technique is applicable to frequency combs based upon other mode-locking mechanisms, such as nonlinear polarization rotation and nonlinear optical loops, and therefore represents a general technique to improve the performance of fiber based frequency combs.

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