

Abstract Submitted
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A robust, field-deployable, low-cost mode-locked laser oscillator for deployed optical atomic clocks.¹ HENRY TIMMERS, DYLAN TOOLEY, BENNETT SODERGREN, RYAN ROBINSON, KURT VOGEL, KEVIN KNABE, Vescent Photonics — Frequency combs have been investigated in the laboratory over the course of the last 25 years in a wide range of implementations and applications including but not limited to optical atomic clocks, precision metrology, precision spectroscopy, LIDAR, and low-phase-noise RF generation. While the Nobel prize winning technology of frequency combs have shown their usefulness in a variety of applications, there have been few demonstrations of this technology in real-world applications. Here we present a mode-locked oscillator that has been designed to be environmentally robust and low cost, while maintaining suitability for use in frequency comb applications. Vescent Photonics has designed environmentally robust oscillators and frequency combs for government programs including satellites and terrestrial moving platforms. These designs allow for repetition rate matching at the time of manufacture, which is an important consideration for integration of this technology into several key applications. Vescent Photonics will report on the performance, environmental robustness, and cost of these fiber laser systems.

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