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Generation of High-Repetition-Rate Pulses Utilizing Cascaded Single Mode Fiber and Semiconductor Optical Amplifier

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**Abstract:** To generate high-repetition-rate optical pulses, a novel and simple device is demonstrated, in which the cascaded single mode fiber (SMF) with negative third order dispersion and semiconductor optical amplifier (SOA) are adopted. Numerical research results show that let an optical pulse with center wavelength in zero dispersion wavelength of optical fiber transit in SMF for generating an oscillation pulse. Subsequently, the followed SOA is provided for amplification. As a consequence, the high-repetition-rate optical pulses can be obtained.

**Key Words:** Optoelectronics, high-repetition-rate optical pulses, single mode fiber, semiconductor optical amplifier

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