**A single longitudinal mode multi-kHz repetition rate BBO Optical Parametric Oscillator pumped by third harmonic of a DPSSL**

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* + 1. **Abstract**

A single longitudinal mode (SLM) operation of a 1 kHz repetition rate nanosecond Type-II BBO optical parametric oscillator (OPO), pumped by the third harmonic (355 nm) of a Diode Pumped Solid State Laser (DPSSL), is demonstrated for the first time. Cylindrical focusing of the pump beam and its twofold pass through the BBO crystal have enabled to achieve a very low oscillation threshold (~0.7 mJ/pulse) as well as spectral linewidth (< 150 GHz) of the OPO at signal wave. Insertion of an intra-cavity Fabry-Perot etalon, at the rear side of the pump beam reflector, has facilitated to obtain reliable SLM operation of this singly resonant OPO over the tuning range 500 nm to 600 nm of signal wave. The time averaged spectral linewidth of this 1 kHz repetition rate Type-II BBO OPO is < 300 MHz.