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标题: Cascaded synchronous terahertz optical parametric oscillations in a single MgO:PPLN crystal

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摘要: We present a synchronously pumped optical parametric oscillator (OPO) based on a single MgO-doped periodically poled lithium niobate crystal (MgO:PPLN) delivering high-repetition-rate picosecond idler output in the mid-infrared. At high power levels, cascaded optical parametric oscillations are observed, from which the forward and backward idler waves are generated in the terahertz (THz) spectral region. We demonstrate the cascaded processes involving THz-wave generation and make explanations for the highorder cascaded optical parametric processes. The cascaded terahertz optical parametric oscillations in a synchronously pumped optical parametric oscillator are reported for the first time to the best of our knowledge.

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