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Enhancement of terahertz output power in terahertz parametric oscillator with recycled pump beam DONG HO WU[1], Naval Research Laboratory, TOMOFUMI IKARI[2], Temple University — In the terahertz parametric technique the pump beam is used only once, and then dumped, regardless that the dumped pump beam still has substantial laser energy. So the energy efficiency of the technique is low. This paper reports a new parametric technique in which we recycle the pump beam (instead of dumping it) in order to increase the efficiency and enhance the terahertz beam output. Our experiments, in which we used a doped $LiNbO_3$ crystal with 5% MgO, indicate that the terahertz beam output increases almost five times magnitude for a terahertz parametric oscillator with recycled pump beam.

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