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Terahertz radiation out of an optical parametric oscillator

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Ultrafast light sources with a wavelength around two micrometers are interesting for several experiments like high harmonic generation and investigation of Brunel harmonics. We want to present a doubly resonant optical parametric oscillator (DROPO) for intracavity experiments. Our system is pumped by a home built kerr lens mode locked Yb:YAG thin disk laser with a repetition rate of 34 MHz. The DROPO is operating in a bowtie configuration and uses a BBO as the nonlinear medium. The wavelength can be rapidly adjusted between the degeneracy point up to 1900 nm + 2300 nm by cavity length tuning alone. An additional focus point inside the cavity is suitable for an gallium phophide wafer in which we want to excitate Brunel harmonics with the signal and the pump wave.

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