Tunable High-Power OPO / OPA (at 2 μm) for an Optical Pumped Amplifier at 10 μm

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We demonstrate a directly Nd-YAG laser (1064 nm, 10 ns) pumped single-crystal high energy OPO and compare this system with a standard MOPA system with one OPO and four amplification stages. We obtained 2 μm pulse (signal) energies of 90 mJ for the high-energy OPO and 115 mJ for the MOPA system. The duration of the signal and idler beams is about seven ns. Both systems allow tuning the wavelength between 1.9 and 2.4 mu. We want to discuss the possibility to pump a 10 μm amplifier and will present the first results.