

# ORPHEUS | MIR



## Broad-Bandwidth Mid-Infrared Optical Parametric Amplifier

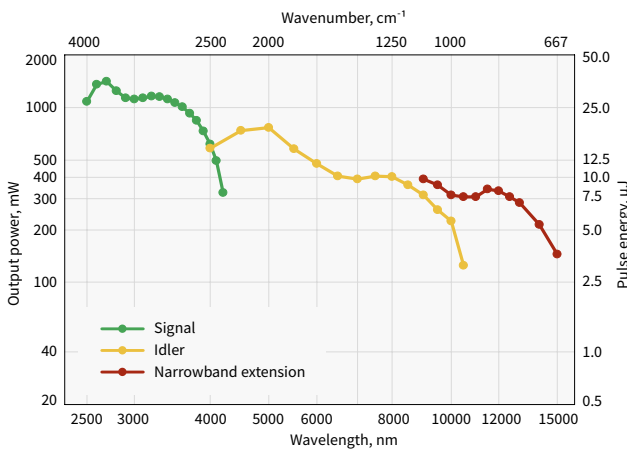
### FEATURES

- Up to 800  $\text{cm}^{-1}$  spectral bandwidth
- 2500 – 15 000 nm tuning range
- < 100 fs pulse duration
- Up to 400 kHz repetition rate
- Up to 80 W, 2 mJ pump
- Short-pulse high-energy output at 2000 nm
- Optimization for bandwidth
- CEP-stable option

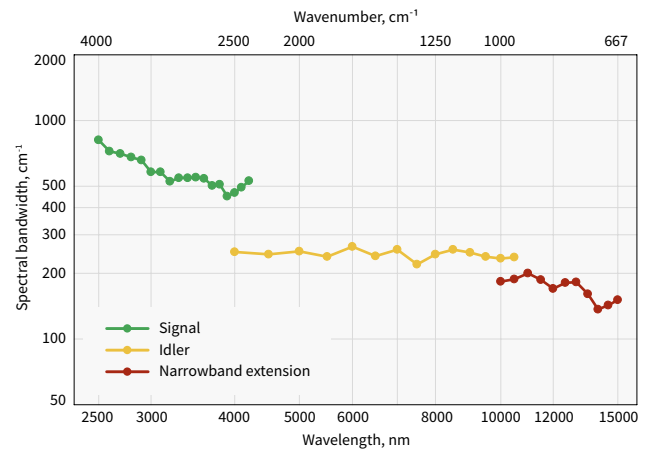


ORPHEUS-MIR is an optical parametric amplifier (OPA) optimized for the efficient generation of broad-bandwidth MIR pulses. The laser system provides broadband pulses in the tuning range of 2.5 – 10  $\mu\text{m}$  and reaches up to 15  $\mu\text{m}$  with a narrow-bandwidth extension. Due to the novel system design, ORPHEUS-MIR provides < 100 fs pulses directly at the output. Signal and Idler outputs are available simultaneously. The system architecture is well-suited for high-energy and high-power PHAROS and CARBIDE femtosecond pump lasers.

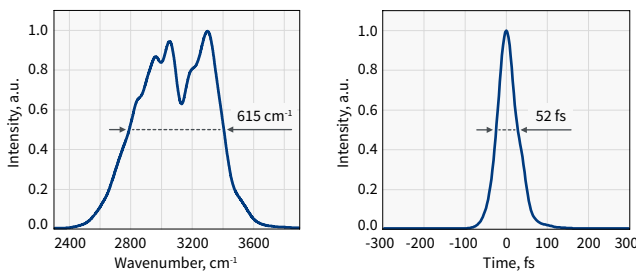
ORPHEUS-MIR serves as an excellent high-repetition-rate source for infrared spectroscopy such as broadband vibrational sum-frequency generation (SFG) spectroscopy. Combined with a narrow-bandwidth output of SHBC, it forms a compact laser system for SFG measurements, covering most of the MIR spectrum while also providing high spectral resolution. Furthermore, its high output stability is the key to fast and high-quality SFG imaging.



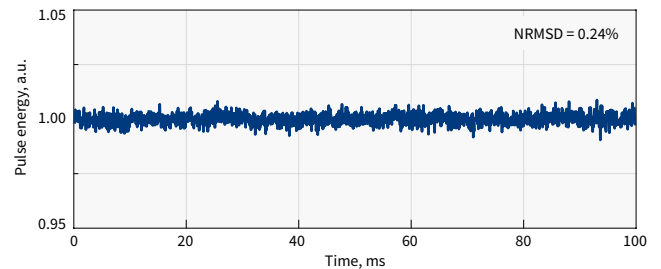
Typical tuning curves of **ORPHEUS-MIR**.  
Pump: 80 W, 2 mJ, 40 kHz



Typical spectral bandwidth of **ORPHEUS-MIR**



Typical output spectrum (left) and pulse duration (right).  
Measured at  $\approx 3000 \text{ nm}$



Pulse-to-pulse energy stability of **ORPHEUS-MIR**.  
Measured at  $\approx 3000 \text{ nm}$

