HC PHOTONICS CORP.

PPLN Cavity Mixers:

Cavity configuration is an alternative way to enhance nonlinear frequency conversion. For your application convenience, we have developed cavity mixer platform which can be customized to a variety of mixer applications, such as external pump OPO (EP-OPO), Intra-cavity OPO (IC-OPO), intra-cavity SFG (IC-SFG), intra-cavity DFG (IC-DFG) etc. Example applications are for generating NIR signal wavelengths between 1.4-2 um and MIR idler wavelengths between 2.3-4.5 um.

Key features

- Cavity enhanced & high-efficiency, optimized for your specified input pump or desired output signal/idler
- Available output wavelength from UV/Visible to NIR/MIR
- Available mixing configuration from fundamental type to advanced type (such as IC-OPO, IC-SFG, IC-SHG, IC-DFG, EP-OPO etc.)
- Available for fiber or free space as input/output coupling interfaces
- Available with integrated thermistor/TEC for QPM temperature optimization & optional photodiode (PD) for power monitoring/automatic power control
- Convenient, compact and robust and available for a variety of application customization

Bonner Ring 9
50374 Erftstadt

Fon +49.(0)2235.9 55 22-0
Fax +49.(0)2235.9 55 22-99

info@gwu-group.de
www.gwu-group.de

Example: IC-OPO

an ultra-low power consumed optical parametric oscillator (OPO)

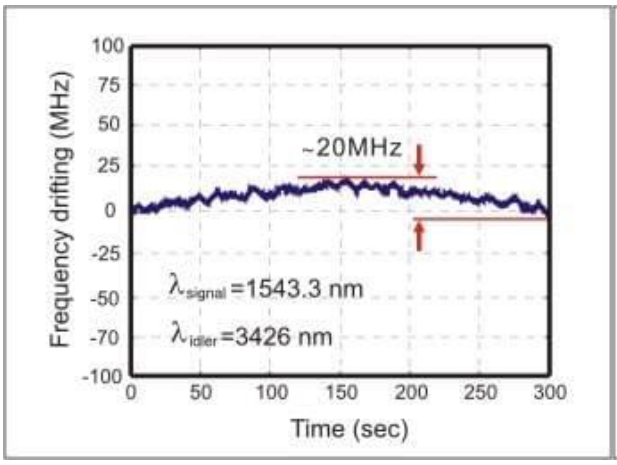
The intracavity design of the OPO utilizes the high circulating power in the cavity to achieve extremely low threshold pump power. 4 series with 3 wavelength cover ranges are provided upon request.

OPO-B and OPO-S are the OPO module with fixed wavelength specified by the customer in the range of either α, β or γ. In contrast, OPO-TB and OPO-TS are the wavelength tunable OPO that cover the entire range.

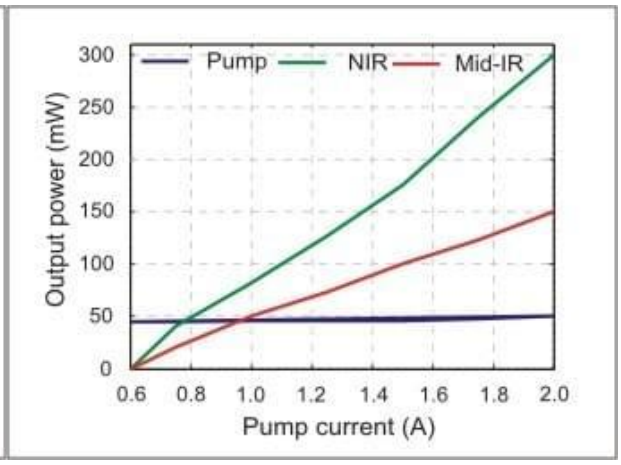
B: broad bandwidth (few nm)
S: single longitudinal mode
T: tunable
e.g. OPO-TS: tunable, single longitudinal mode

Parameters	unit	OPO-B	OPO-TB	OPO-S	OPO-TS
Signal/Idler wavelength	nm		α series: 1560-1880/2500-3300 β series: 1495-1640/3000-3700 γ series: 1440-1510/3600-4100		
Signal/Idler output power*1	mW		α series: 250/100 β series: 250/90 γ series: 200/70		*3α series: 150/80 β series: 150/70 γ series: 100/40
linewidth*2	GHz	300	300	<0.2	<0.2
Frequency stability	MHz/hr	N/A	N/A	<400	<400
Beam Quality	-		TEM_{00}, signal M^2<1.2, idler M^2<1.5		
Beam divergence	mrad		Collimated, <1 mrad		
Power stability (rms)	%		<5		
Polarization			Linear, >20dB		

*1. *Peak value, power may vary with wavelength*
*2. *The linewidth changes a little with wavelength*
*3. *Preliminary specifications*



Frequency stability of the OPO-S-β



power scaling of OPO-B-α

power scaling of OPO-B-α

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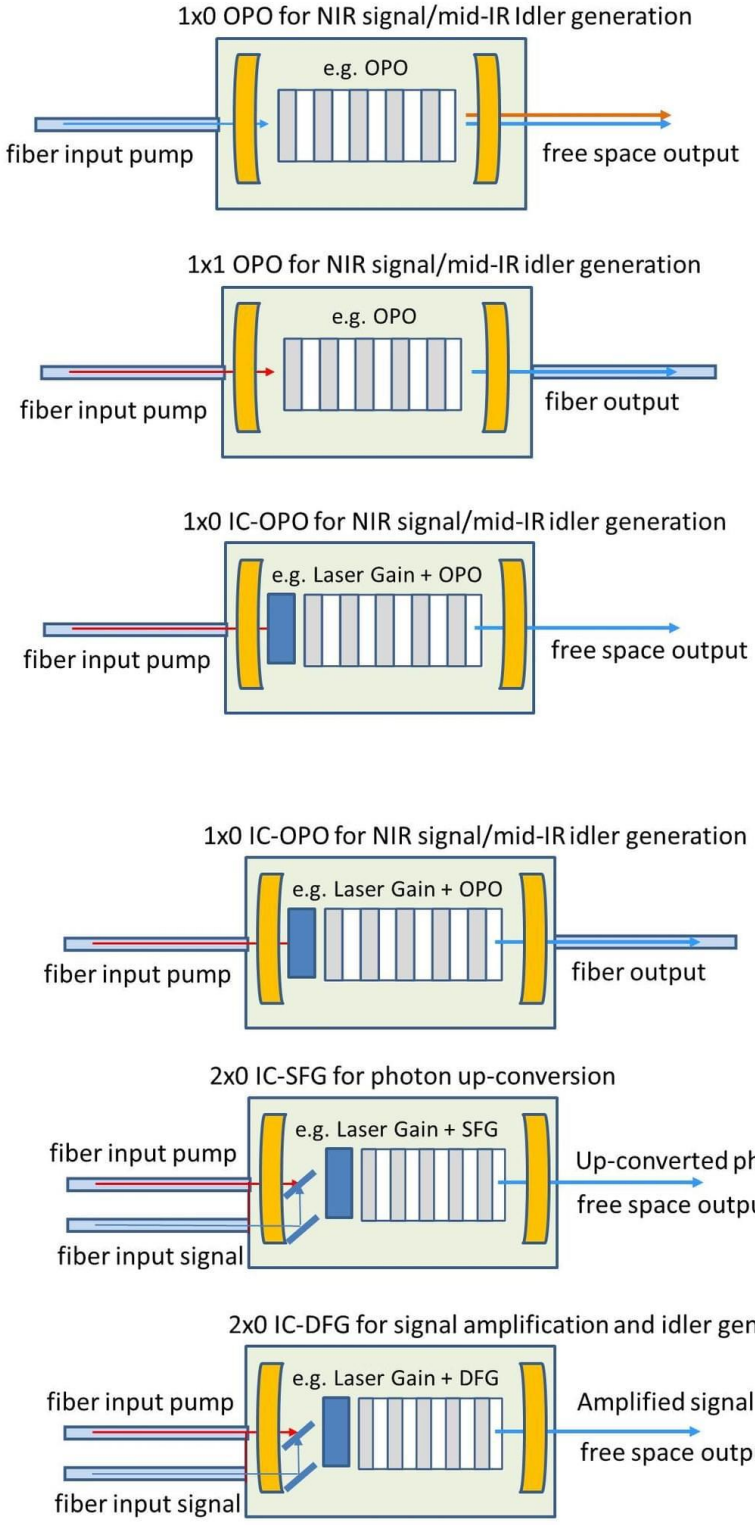
Example available configurations:



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