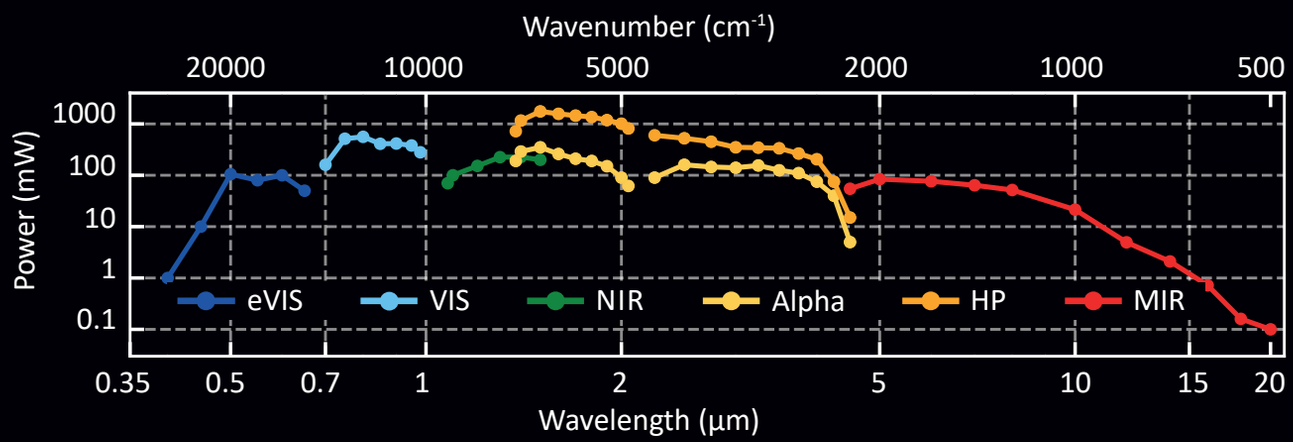
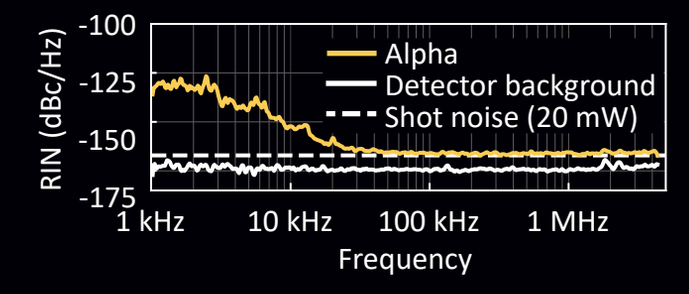
Alpha

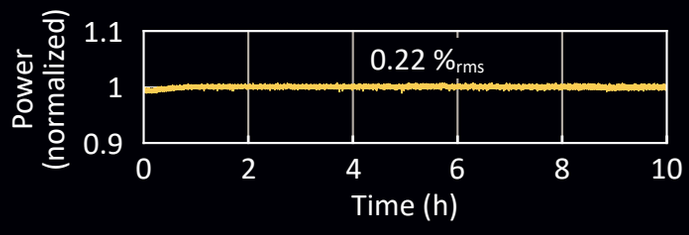
Award winning femto- or picosecond tunable laser system

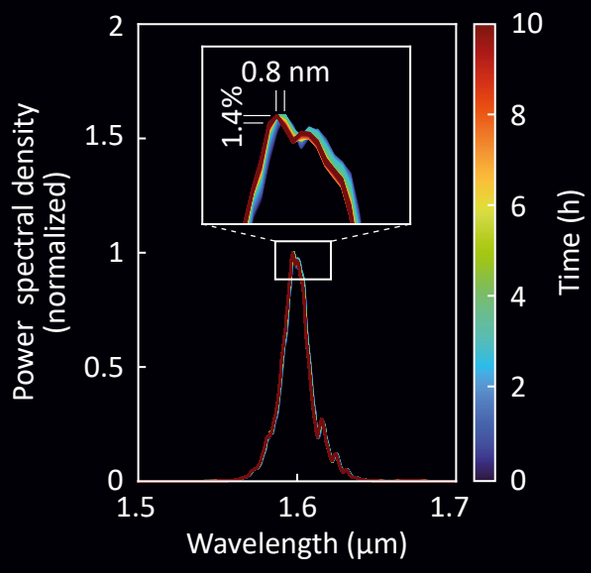
Broad tunability – fully automated from VIS to MIR



Free-running design for ultra-low noise and long-term stability







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Alpha

Modular and configurable multi-application platform

Fiber-feedback OPO ensures
precise and repeatable tuning

System is
fully integrated and automated

1. Pump laser defines
pulse length and repetition rate

2. Modules define
tuning range and average power

1. Pump lasers			
Repetition rate (MHz)	10 - 100 (fixed)		
Pulse duration	100 fs	350 fs	1.5 ps
Linewidth (cm^{-1})	130	40	25

Common specifications	
Time-bandwidth product	< 0.6
Beam pointing	< 30 µrad
Spectral stability	< 0.02 %
Power stability	< 1 %
Shot noise limited	> 1 MHz

2. Modules	Alpha	HP	MIR	NIR	VIS	eVIS
Wavelength (µm)	1.4 - 4.5		4.5 – 20	1.1 – 1.4	0.7 – 0.98	0.47 – 0.98
Power (mW)	> 300	> 1500	> 50	> 200	> 400	> 50

Example configurations and applications

Alpha	HP	VIS	
10 MHz	1.5 ps		Stimulated Raman spectroscopy (SRS)

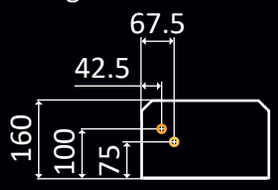
Alpha	HP	MIR	
40 MHz	350 fs		THz generation, pump-probe

Alpha	HP	MIR	
80 MHz	1.5 ps		Infrared multiphoton dissociation

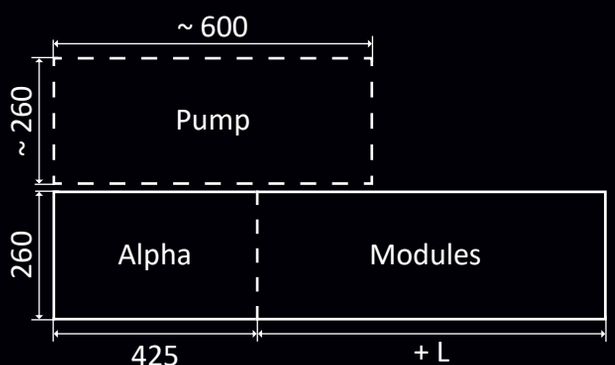
Alpha	VIS	
80 MHz	100 fs	Quantum communications

Alpha	NIR	
10 MHz	100 fs	Multiphoton microscopy

Scale: 1:15
Units in mm
Idler
Signal



Front view



Top view

Modules	+ L in mm
HP	+ 275
MIR	+ 150
NIR	+ 125
VIS	+ 125
eVIS	+ 260

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