PICOSECOND DUAL-WAVELENGTH FIBER-LASERS FOR **CARS** & **SRS** MICROSCOPY

activefiber systems

ADVANTAGES OF DUAL-WAVELENGTH SOURCES FROM AFS

- Intrinsically synchronized pulses
- Alignment-free all-fiber frequency conversion
- Compact & robust
- Tuning over entire range within seconds
- NO warmup time
- Fiber-coupled output options available
- Easy-to-use control software

APPLICATIONS

- CARS spectroscopy and microscopy
- Microscopic multi-modal nonlinear imaging (CARS, SHG, TPEF)
- SRS microscopy

	SRS VERSION
Tuning range (continuous)	1400 cm^{-1} to 3800 cm^{-1} (Further extendable with large bandwidth options)
Tuning speed	< 8 s (full range)
Output wavelength 1	1015 nm ... 1070 nm
Output wavelength 2	750 nm ... 960 nm
Spectral width wavelength 1 & 2 (FWHM)	< 15 cm^{-1} (for > 2000 cm^{-1}) < 20 cm^{-1} (for < 2000 cm^{-1})
Repetition rate wavelength 1	18 MHz
Repetition rate wavelength 2	9 MHz
Pulse duration wavelength 1 (FWHM)	< 60 ps
Pulse duration wavelength 2 (FWHM)	< 30 ps
Average power wavelength 1	> 200 mW @ 18 MHz
Average power wavelength 2	> 50 mW @ 9 MHz
RIN of wavelength 1 (@ 9 MHz)	< -145 dBc/Hz
Polarization	Linear
Beam quality	Free space M^2 < 1.2
Dimensions (width x depth x height)	710 mm × 410 mm × 140 mm
Mass	< 35 kg
Power consumption	< 100 W (24 V power supply)
Cooling	air-cooled

MORE INFORMATION

www.afs-jena.de

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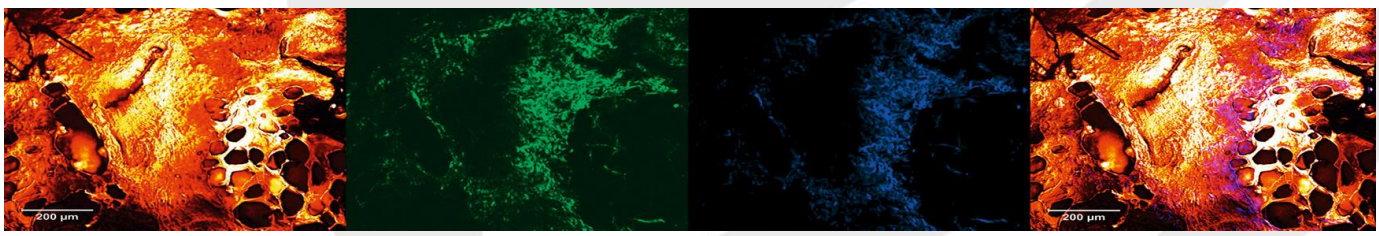
SCAN ME



Multimodal composite image of human connective tissue showing an overlay of CARS (red), SHG (blue) and TPEF (green) signals. Courtesy of IPHT Jena

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CARS versions →

PICOSECOND DUAL-WAVELENGTH FIBER-LASERS FOR **CARS** & **SRS** MICROSCOPY

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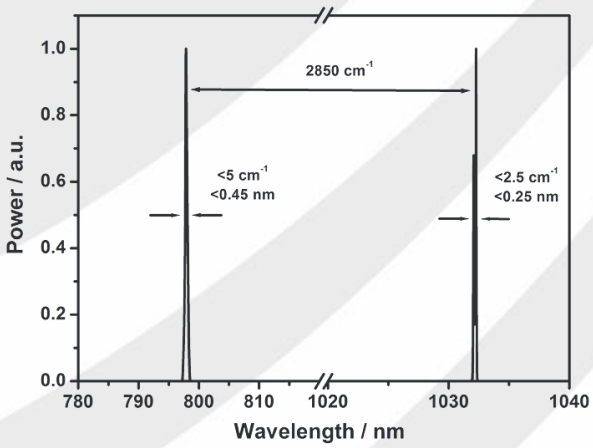
	CARS STANDARD VERSION	CARS HIGH-RESOLUTION VERSION
Tuning range (continuous)	2700 cm $^{-1}$ to 3300 cm^{-1} (extendable with large bandwidth options to 1500cm^{-1} ... 3300cm^{-1} or more)	
Tuning speed	< 1 s (full range)	< 2 s (full range)
Output wavelength 1	1015 nm ... 1070 nm	
Output wavelength 2	750 nm ... 960 nm	
Spectral width wavelength 1 (FWHM)	< 15 cm^{-1}	
Spectral width wavelength 2 (FWHM)	< 40 cm^{-1}	< 15 cm^{-1}
Repetition rate	1 MHz ... 3 MHz	1MHz ... 4MHz
Pulse duration wavelength 1 (FWHM)	< 60 ps	
Pulse duration wavelength 2 (FWHM)	< 30 ps	
Average power wavelength 1	> 100 mW @ 1 MHz > 300 mW @ 3 MHz	> 50mW @ 1MHz > 200 mW @ 4MHz
Average power wavelength 2	> 10 mW @ 1 MHz > 30 mW @ 3 MHz	> 15 mW @ 1MHz > 60 mW @ 4MHz
Polarization	Linear	
Beam quality	Free space output M² < 1.2 (optional: fiber coupled)	
Dimensions (width x depth x height)	260 mm x 320 mm x 150 mm	560 mm x 410 mm x 140 mm
Mass	< 15 kg	< 35 kg
Power consumption	< 100W (24V power supply)	
Cooling	Air cooled	

SCAN ME



Typical emission spectrum

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SRS version