

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

	COMPACT DUAL-WAVELENGTH FIBER LASER
Tuning range (wavenumbers)	0cm ⁻¹ ... 5000cm ⁻¹
Output wavelength range	Typically between 600nm and 1100nm
Spectral width	As narrow as < 10cm ⁻¹
Tuning speed	As fast as < 1s (full range)
Repetition rate	Flexible, tunable configurations single shot ... 30MHz
Pulse duration	As short as <10ps
Average power	Up to 1000mW per output
Peak power	≥500W for all outputs
Polarization	Linear
Beam quality	Fiber coupled or free space output M ² < 1.2
Spatial overlap	Overlapped or independent outputs possible
Temporal overlap	Passively overlapped or actively adjustable to compensate dispersion effects in attached microscope
SRS extension	Available as options RIN < -145dBc/Hz on output 1/2
Power tunability	Outputs can be tuned independently from 0 to full power while maintaining pulse duration and bandwidth
Warm-up time after system start	<1min
Control interface	Software, RS232, USB, customizable
Dimensions (W × D × H)	As small as 200mm × 200mm × 200mm (customizable, depending on configuration)
Mass	As light as 10kg (customizable, depending on configuration)
Power consumption / Cooling	< 100W (24V power supply) / Air-cooled



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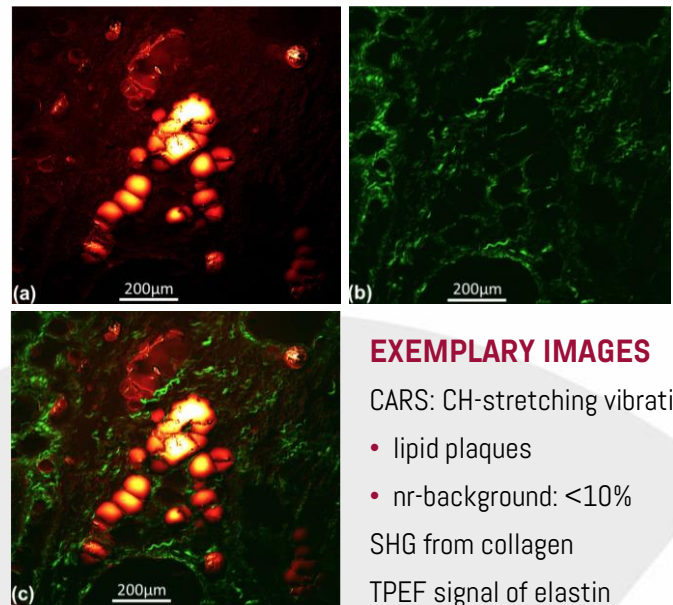
Member of the TRUMPF Group 

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



EXEMPLARY IMAGES

CARS: CH-stretching vibrations

- lipid plaques
- nr-background: <10%

SHG from collagen

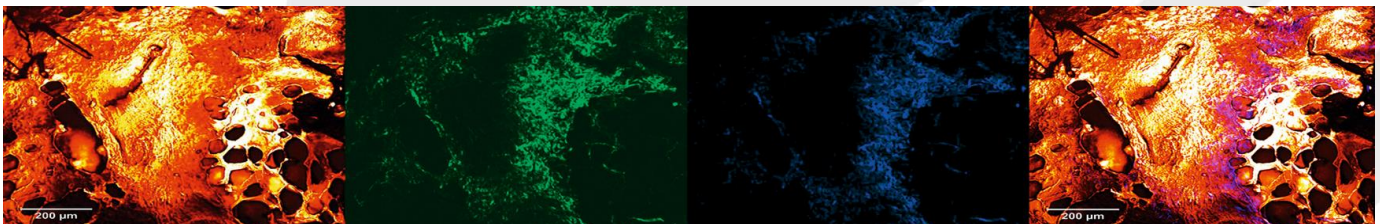
TPEF signal of elastin

Courtesy of IPHT Jena

MORE INFORMATION

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

