

# Just Push the Button

- Toptica's Ultrafast Fiber Lasers -

EPIC Online Technology meeting on Femtosecond Lasers  
1<sup>st</sup> April 2020

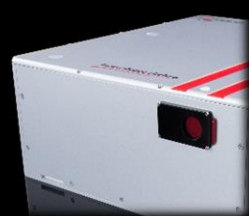
Dr. Holger Quast  
Senior Director Biophotonics and Materials



FemtoFiber smart



FemtoFiber ultra



FemtoFiber dichro



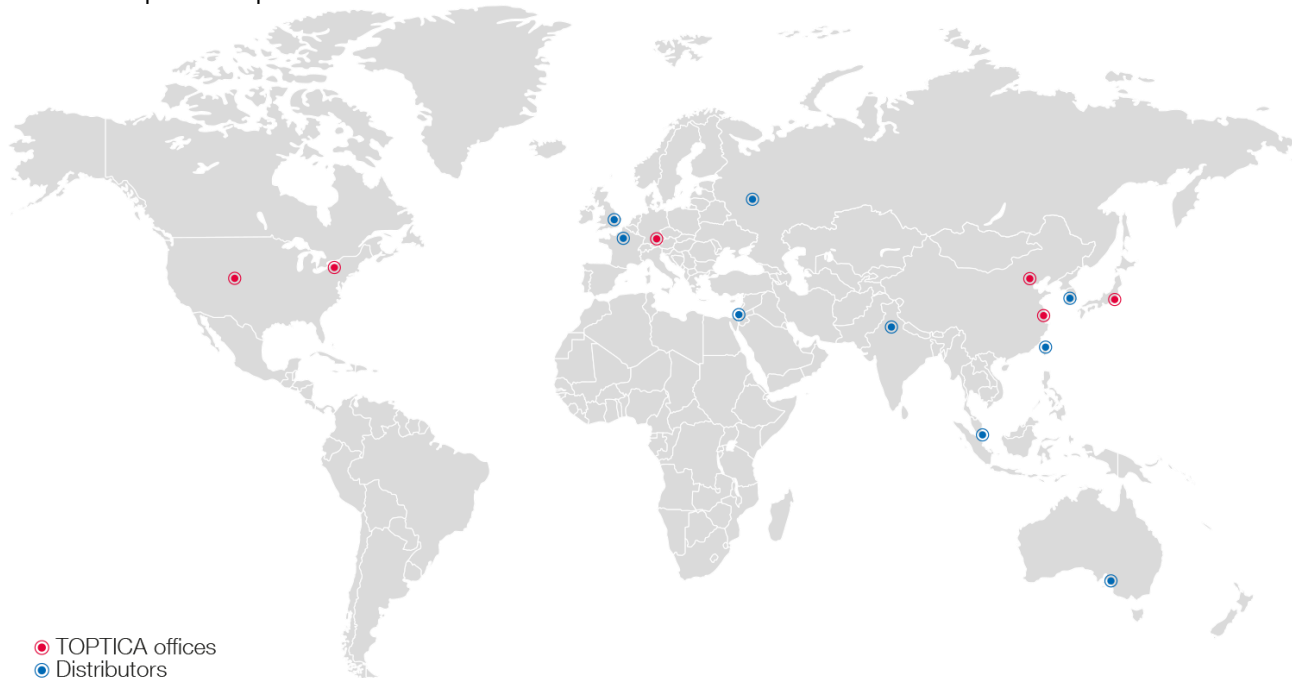
FemtoFiber pro



FemtoFiber customized

# Toptica serves the world with a broad laser technology portfolio

## Overview Toptica Group



**TOPTICA**  
**Photonics AG**  
Germany

**TOPTICA**  
**Photonics Inc.**  
USA

**TOPTICA**  
**Photonics K.K.**  
Japan

**TOPTICA**  
**Photonics**  
China

## Key Figures (02/2020)

Employees	320
Revenues	74 Mio € (82 Mio \$)
Founded	1998

## Technology

Diode Laser Systems  
190 – 4000 nm

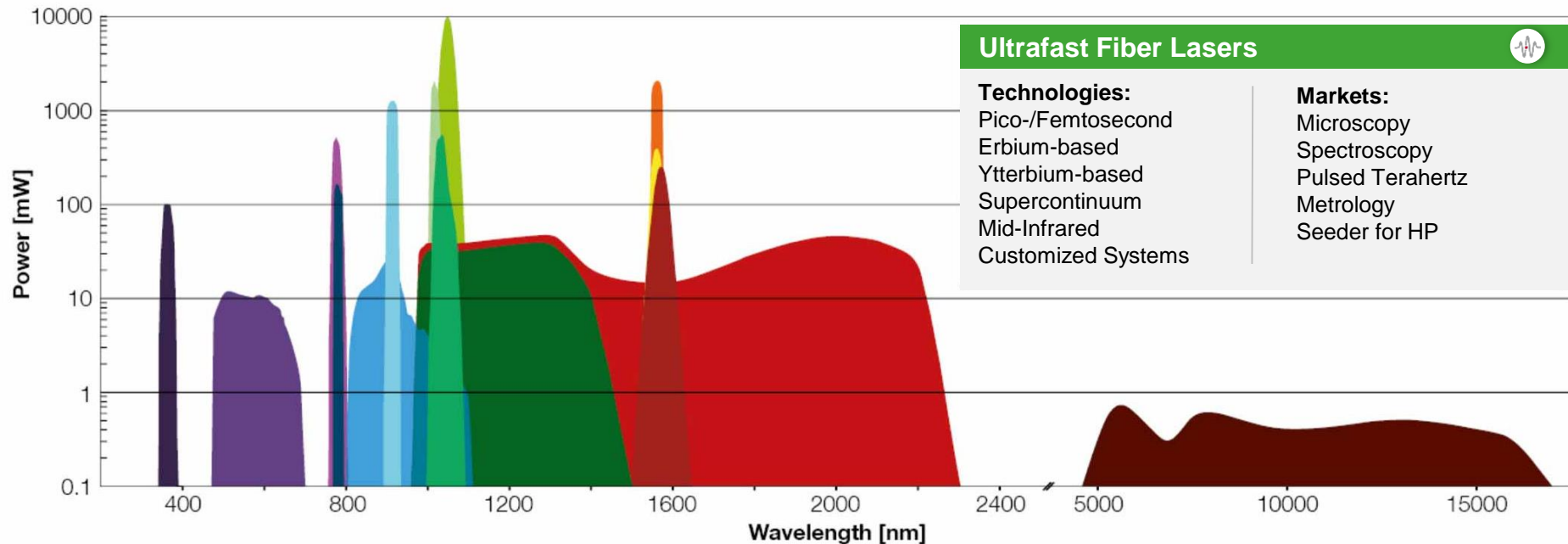
**Ultrafast ps/fs Fiber Lasers**  
**390 – 15000 nm**

Terahertz Generation  
0.1 – 6 THz

High Power Laser Diodes  
630 – 1120 nm  
(eagleyard Photonics)

# „All wavelengths“ is Toptica’s message also in Femtosecond lasers...

Overview of wavelengths covered with Toptica’s Femtosecond lasers



  
**All Wavelengths.**  
190 nm - 0.1 THz

488 – 2200 nm

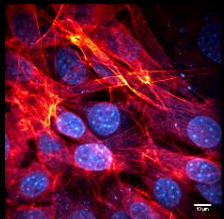
+

5 – 15  $\mu$ m

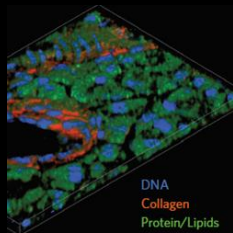
# ... leading to a broad product portfolio for numerous applications

Overview of selected applications and an overview of Toptica's product lines

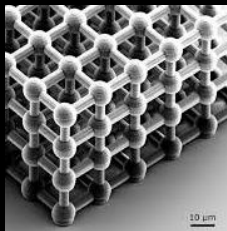
## Served Application Examples



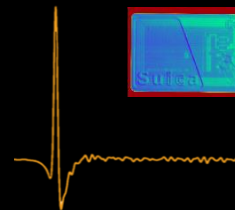
2-photon /  
SHG -microscopy



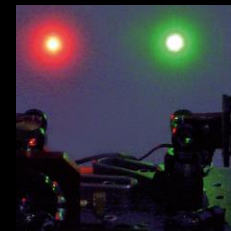
CARS / SRS



2-photon  
polymerisation



Terahertz spectroscopy



Pump-probe  
spectroscopy

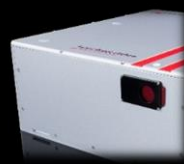
## Product Lines – from serial production down to highly customized systems



FemtoFiber smart



FemtoFiber ultra



FemtoFiber dichro



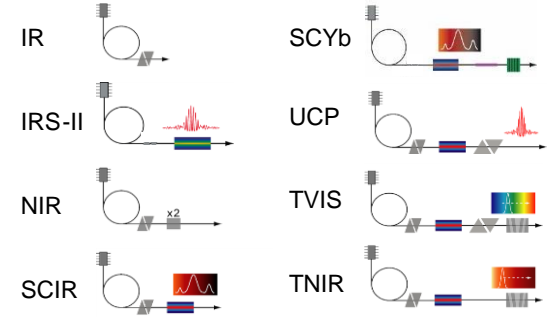
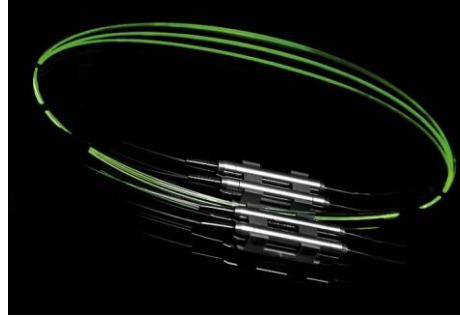
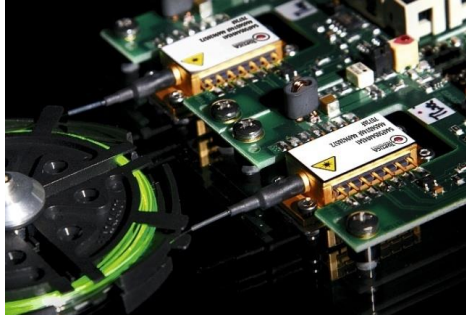
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# The base to drive such portfolio is our technology platform

## Toplica's Ultrafast Fiber Laser Technology Platform



### Telecom Reliability

- Alignment free
- Telecom components, reliable and economical
- Robust and shock-proof
- Small, portable, quiet
- Maintenance free

### Gain Fiber

- Long gain medium: efficient
- Cool fiber: Excellent thermal properties
- Perfect overlap between pump and laser beams inside fiber
- Single-mode fiber guarantees diffraction limited mode profile

### Flexibility

- Widest wavelength coverage
- Intrinsic time synchronization
- Modularity in OEM quality
  
- Laser – Lego ☺

What we look for are components, a more European supply chain, and good health for everyone



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**THANK YOU!**