



FemtoTwin

The inherently synchronized Ti:sapphire - Yb-fiber amplifier laser system

NEW! Our latest version of femtosecond pulse Ti:sapphire laser developed for nonlinear 3D microscopy

FemtoRose 100 TUN Compact/NoTouch (TM)

- tuning range 890 to 1050 nm
- patented ultrabroadband chirped mirror (UBCM) technology
- internal shutter (can be operated directly by the microscope)
- wavelength setting by a computer or a microscope
- compatible with Carl Zeiss microscopes (ZEN software)
- internal pump laser
- fully closed housing, operation is independent of environmental conditions (e.g., humidity)

R&D Ultrafast Lasers Ltd - your partner in nonlinear 3D microscopy

Other related products and services:

- ion beam sputtered, low dispersion or dispersion compensating mirrors
- building complete laser-optical laboratories
- consulting
- service for femtosecond pulse laser system




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FemtoFiber™ All-fiber, femtosecond pulse ytterbium oscillator/amplifier system



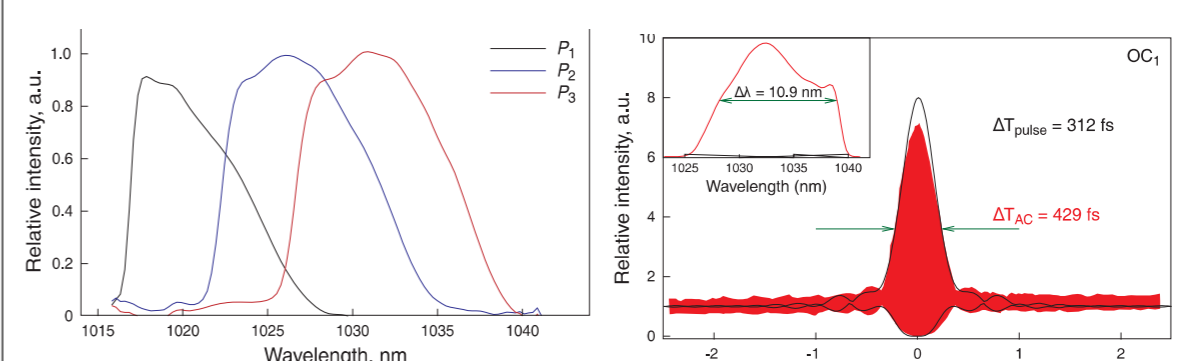
Key features

- All-fiber, all-normal dispersion oscillator
- Automatic control for low RMS noise operation
- Tunable in the 1020-1040 nm regime

Applications considered

- Multi-photon and CARS microscopy
- Ultrafast spectroscopy
- Seed for femtosecond pulse OPO-s and FOPPO-s

Typical output spectra and SHG autocorrelation trace



Reference

Fekete J, Csereg A, Szipocs R; All-fiber, all-normal dispersion ytterbium ring oscillator. Laser Phys. Lett. **6** (1) 49-53 (2009)

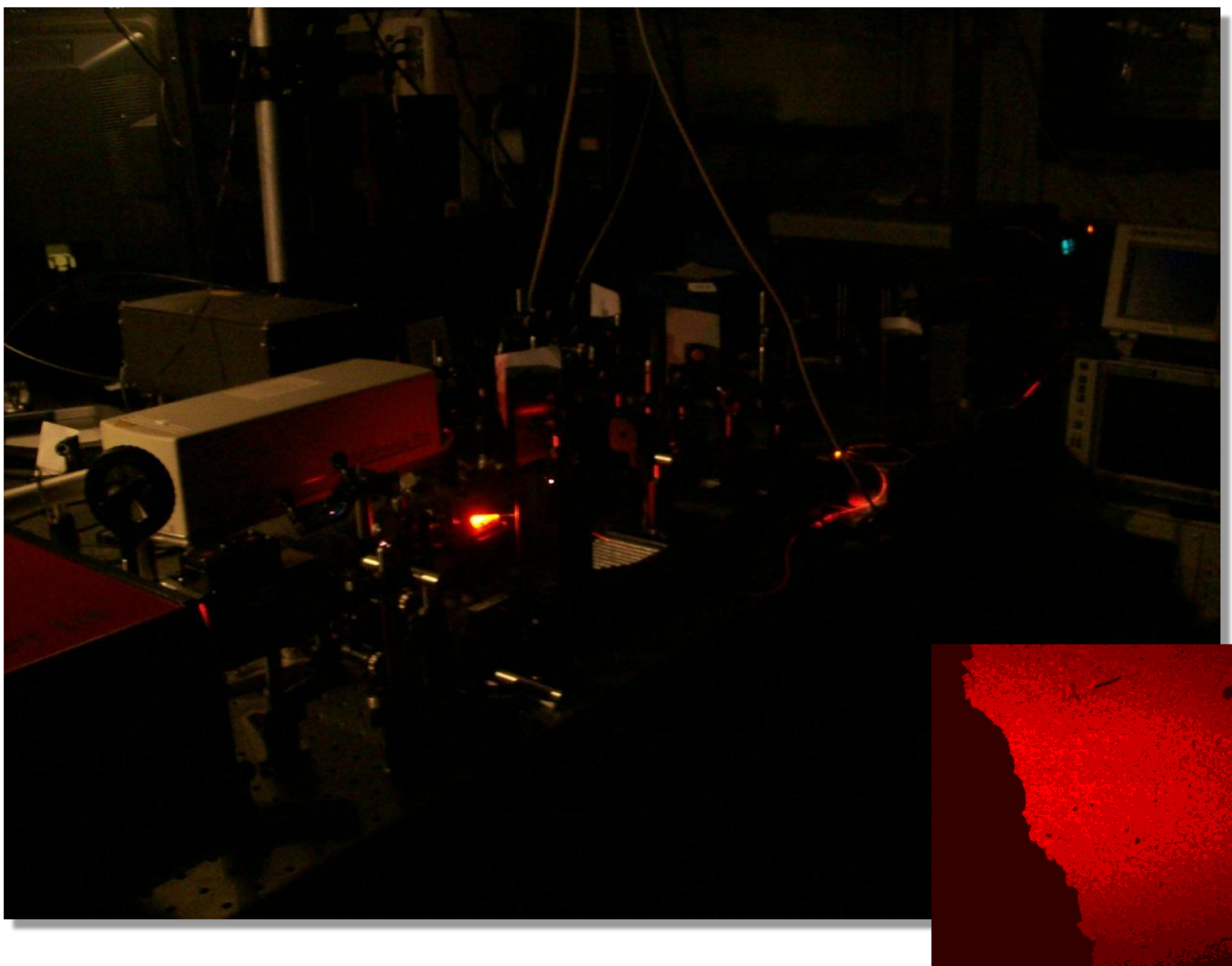
Application for nonlinear microscopy

System Specifications (preliminary)

- Average output power: > 900 mW
- Operation wavelength: ~ 1030 nm
- Bandwidth: > 6 nm
- Pulse duration at laser output: ~ 20 ps
- Repetition Rate: 20-80 MHz
- Spatial Mode: TEM00
- Polarization adjustable by QWP and HWP

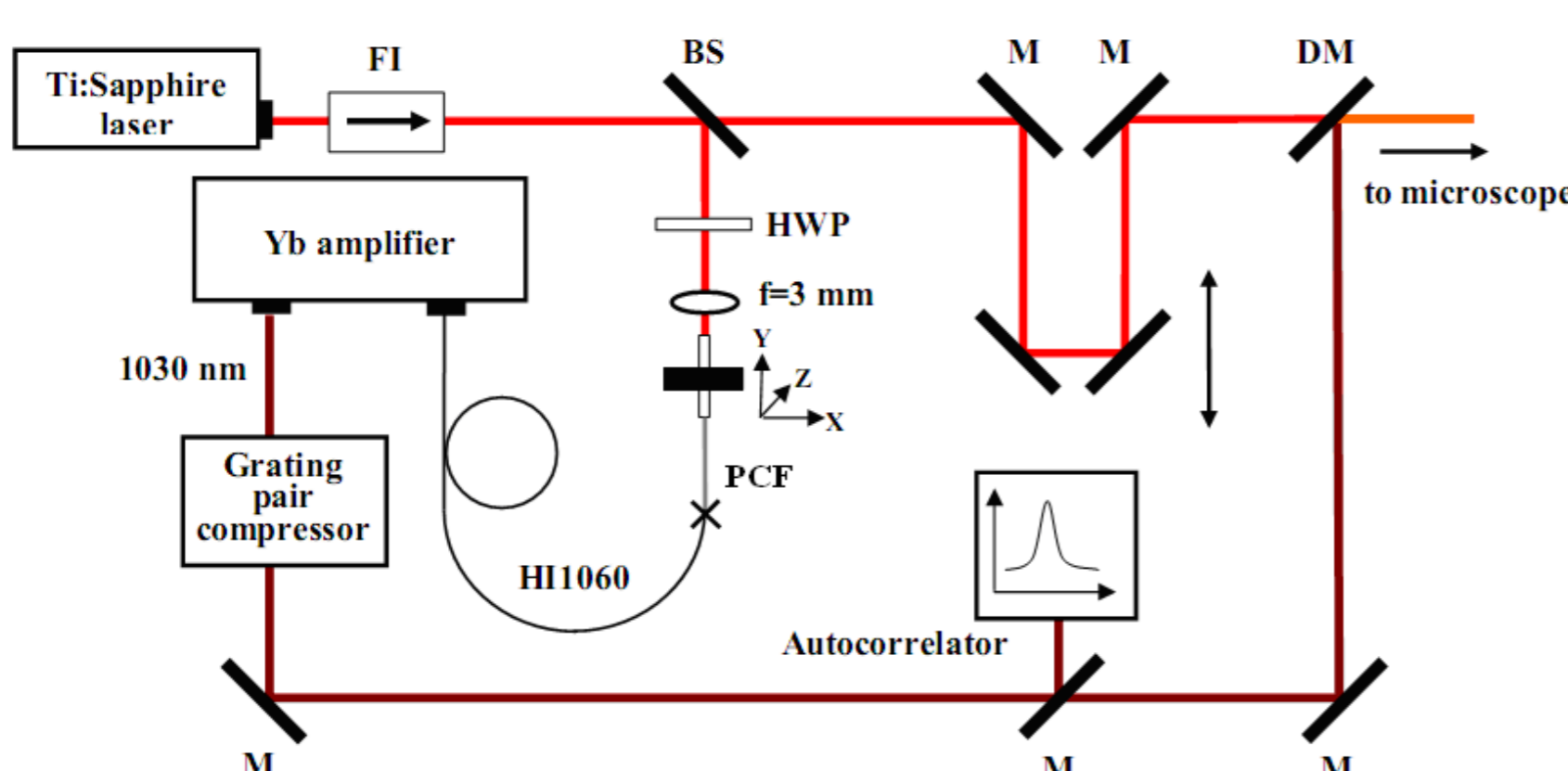
Optional compressors:

- Transmission grating or hollow fiber compressor
- Compressed pulse duration: < 300 fs or < 600 fs



The **FemtoTwin** laser system comprising the inherently synchronized **FemtoFiber** Yb fiber laser and **FemtoRose 100 TUN NoTouch** Ti-sapphire laser. The laser system along with a Zeiss Axio Examiner LSM 7 MP microscope (product of Carl Zeiss) is used for high spatial resolution 3D imaging by CARS microscopy. *Inset: CARS image of carbon nanotubes.*

Experimental setup



Applications used

- CARS microscopy

Application considered

- OPCPA laser systems



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