

TECHNICAL PRESCRIPTIONS

PROCUREMENT OF THE SERVICE RELATING TO THE "UPGRADE OF THE 3-MICRON OPCPA FIBER MOPA FRONTEND" AT ICFO, THROUGH AN OPEN PROCEDURE NOT SUBJECT TO HARMONIZED REGULATION

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CLAUSE 1. Object of the contract

The purpose of this contract is the execution of the service related to the "UPGRADE OF THE 3-MICRON OPCPA FIBER MOPA FRONTEND " AT ICFO.

La tipología de servicio descrito se halla vinculado con el CPV (Vocabulario Común de Contratación Pública), 50312620-7; Reparación de equipo de tecnología de la información.

CLAUSE 2. Needs to be satisfied with the contracting

The 3-micron OPCPA at ICFO is one of the main drivers of Attoscience research and part of the access offer to external users within Laserlab-Europe. The laser system's fiber frontend provides stability and CEP-stable seed pulse generation of the OPCPA chain and is electronically synchronized to the pump laser system. The upgrade needs to ensure that the upgrade laser system provides identical operating parameters and its exchange focuses on minimal invasive installation to the overall system. This includes the synchronization unit and software, RF output and inputs, mode-locking operation and output parameters of the multi-arm system.

CLAUSE 3. Technical specifications

Parameters	acceptable range
Frontend characteristics	Erbium fiber frontend, SESAM mode-locked ring fiber oscillator, polarization maintaining fibers only, core-pumped fiber amplifiers, highly non-linear fibers (HNLF) for supercontinuum generation in the near infrared range, motorized prism compressors for both fundamental pulse compression but also glass prism compressor after Supercontinuum generation, Ethernet, USB and RS232 interfaces, 80 MHz repetition rate
Frontend outputs	Arm1: 980 - 2200 nm, >150 mW, FWHM pulse duration <100 fs, lin pol>95%, $M^2 < 1.2$, free space Arm 2: 980 - 1400 nm, >25 mW, FWHM pulse duration <30 fs, lin pol>95%, free space
Arm 1 unit:	Dimensions of laser head smaller than 155 x 290 x 230 mm ³ ; < 10 kg, Manually adjustable aperture in Fourier-plane of compressor for spectral shaping
Arm 2 unit	Dimensions of laser head smaller than 155 x 290 x 460 mm ³ , < 10 kg, Two motorized prism compressors for continuum and pulse width optimization, Manually adjustable aperture in Fourier-plane of compressor for spectral shaping Variable Repetition Rate for Oscillator Including a fast control based on piezo transducer plus a slow control based on motorized stage, Tuning range typ. 200 kHz ($\pm$ 100 kHz with respect to nominal repetition rate)
Control unit	Unit or units with dimensions < 150 x 240 x 320 mm ³ , < 4.5 kg
Rep. rate control	Phase-locked loop electronics for synchronization of the laser pulse train to an external reference signal or a reference laser system. RMS jitter < 200 fs (10 Hz - 100 kHz integration range)

The multi-arm-configuration based on one master oscillator needs to reach a residual jitter in the attosecond range between different laser arms. The complete system consisting of two arms (SCIR, UCP AMP), VAR & LRC options, can be controlled via USB, RS232 or Ethernet computer interfaces and a control computer is included.

The system is air-cooled, i.e., there is no need for chillers or fans, providing an acoustic noise-free and vibration-free setup. It is beneficial, for the tender if the vendor includes some spare parts for quick repairs such as electronic circuit boards, some patch cables or pump diodes.

CLAUSE 4. Duration of the contract

The tender must include shipping, transportation and installation at the ICFO premises (including customs duties).

Maximum term of execution of the service: 3 months.

CLAUSE 5. Warranty

Minimum one-year (1) full warranty on all components, starting at system acceptance. The warranty will include the replacement of any faulty or damaged part(s) during the normal use of the system. It will cover any cost related with the disassembly, transportation, reparation and re-assembly of the damaged component(s).

CLAUSE 6. CE Marking

CLAUSE 7. Target price

Considering the provisions of article 101 LCSP, the estimated value of this procurement will be **€82.000.00.**

CLAUSE 8. Funding

Severo Ochoa ICFO.

Castelldefels, on the date of its digital signature

Prof. Dr. Jens Biegert
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