ICFO

SPECIFICATION SHEET

SUPPLY, INSTALLATION AND COMMISSIONING OF AN "ATTO-SXR OPCPA FRONTEND" FOR ICFO.

FILE NUMBER: ICFO-2026-065

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CLAUSE 1. Object of the contract

The purpose of this contract is the acquisition of a prototype OPCPA front-end custom-tailored to the specific requirements of the attosecond soft-x-ray beamline at ICFO.

CLAUSE 2. Needs to be satisfied

The prototype OPCPA front-end at ICFO will replace our damaged and aged custom-built Ti:Sapphire front-end, which is the core driver of ICFO's Attoscience research and part of the access offer to external users within Laserlab-Europe. The parameters for operating this facility are derived from 20 years of research and are not commercially available to meet the required specifications in the soft-X-ray regime. The prototype OPCPA front-end consists of a Ytterbium-based solid-state front-end and amplification stages. The system must be able to seed another front-end for parallel amplification. Further, the system must be custom-tailored to include a pump-probe delay matched to our attosecond pump-probe experiments. One of these arms consists of OPCPA stages with passive CEP stability and computer readout as well as computer control of its offset. The prototype must be designed to fit with an existing NOPA system for tunable sub-20-fs pump generation.

CLAUSE 3. Technical specifications

Parameters	**acceptable range**
Frontend characteristics	Ytterbium-based frontend, hermetically enclosed with the option to seed one or more parallel frontends optically, computer controlled operation, Ethernet or USB interfaces, including custom built OPCPA stages to match the 2070 nm output with passive CEP stability and with control of its offset phase.
Frontend outputs	Arm1: Final output with tuning range: 1980-2070 nm, pulse energy >= 300 uJ at peak, pulse duration < 30 fs, repetition rate >=5 kHz, CEP stability over 10h < 100 mrad, output power stability <0.1 %, linear polarized output with purity >98% Arm 2: 1030 nm, pulse energy >70 uJ, pulse duration <450 fs, output power stability <0.1 %, M^2 <1.4, linear polarized output with purity >98% Arm3: Possibility for optical output for slaving another amplifier.
Addons	Upgrade ready for boosting system energy to >=400 uJ in 2050-2070 nm range. Possibility to optically synchronize >=1 Pharos pump lasers for additional optical arms.
Control unit	Computer control over the entire system with remote monitoring and operating option, Including diagnostics of the power, repetition rate, pulse duration and CEP stability as well as its offset.

The multi-arm configuration based on a single master oscillator needs to achieve residual jitter of a fraction of the output pulse duration between the different laser arms. The complete system can be controlled via USB, RS232, or Ethernet computer interfaces. The system needs to meet minimal water-cooling requirements, with no fans, providing an acoustic noise-free and vibration-free setup. We need an option for annual maintenance and service upgrades for 5 years, with an online response time of 48 h and on-site response within 4 weeks at the worst case.

CLAUSE 4. Transportation

4.1. The proposal will include transportation to ICFO's facilities. **DAP incoterm will apply.**

4.2. The equipment will be placed in the selected location by ICFO.

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 to the disassembly, transportation, repair and reassembly of the damaged component(s).

CLAUSE 6. CE Marking

CE MARKING is required.

CLAUSE 7. Delivery time

The system must be delivered at ICFO within a maximum period of **3 months** from the signature of the contract.

It includes the manufacture of the prototype and the transport, installation and commissioning at ICFO's premises.

CLAUSE 8. Target price

280.000.00 EUR (VAT excluded).

Castelldefels, on the date of its digital signature

Prof. Dr. Jens Biegert
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