

PLEC DE PRESCRIPCIONS TÈCNIQUES

SUPPLY, INSTALLATION AND STARTING-UP OF A “TUNABLE, NARROW LINEWIDTH AND RACK INTEGRABLE DIODE LASERS SYSTEM FOR EXPERIMENTS WITH RYDBERG ATOMS” FOR ICFO, THROUGH AN OPEN PROCEDURE NOT SUBJECT TO HARMONIZED REGULATION

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CLAUSE 1. Object of the contract

Rack-integrable, tunable, narrow linewidth diode laser system operating in the blue visible range for the realization of cold atomic Rydberg quantum nodes. The laser output must be fiber-coupled into a single-mode, polarization maintaining fiber (SM-PM fiber).

CLAUSE 2. Technical specifications

- Design wavelength: The laser unit must be coarse tunable in a range of 473 nm - 481 nm.
- Output power should be > 1.1 W at 474 nm at the SM-PM fiber output.
- Linewidth: < 50 kHz at 5 μ s
- Thermal Frequency stability < 200 MHz/K
- Mode hop-free tuning: > 15 GHz

CLAUSE 3. Additional mandatory requirements (in case the offer does not fulfil these requirements, it will be automatically excluded from the tender)

- It has to be possible to integrate the laser system in a standard 19-inch rack and to easily transport it.
- The laser system should be equipped with an internal auto-alignment system.
- The output of the laser should be fiber-coupled (single-mode, PM fiber).
- All control electronics should be included, including all necessary current controllers, temperature controllers and electronics with a digital interface.
- Possibility of active frequency stabilization to an external reference via a high-bandwidth Pound-Drever-Hall lock and the required electronics.
- If the laser system includes a second harmonic generation cavity, its stabilization should not cause residual amplitude modulation.
- The laser should have a monitoring output for the master laser diode.
- The laser should have a certain mode stability, such that continuous measurements can be conducted over the course of many days.

CLAUSE 4. Operation

The laser system should be dye-free. The system should be able to be integrated into a standalone rack with the possibility to remote access to all the electronic modules via ethernet or USB.

CLAUSE 5. Transportation, installation and start-up

5.1. The proposal will include transportation to ICFO's facilities (Hugues de Riedmatten Laboratory) including insurance and all export/import and customs duties. **DAP incoterm will apply.**

5.2. The machine will be placed in the selected location by ICFO. Contract winner will cover all costs, organization and coordination of machine placement, including any required specialized equipment or vehicle, and any required component disassembly and reassembly for system unloading and transportation inside the building.

5.3. Onsite system installation and training to ICFO personnel included.

CLAUSE 6. Warranty and Follow-on Support

- **Minimum 1-year Full Warranty** on all parts and components of the system irrespective of the manufacturer. The warranty will include the replacement of any faulty or damaged part(s) during normal use of the system, no matter the manufacturer of the component(s). It will cover any cost related with the disassembly, transportation, reparation and re-assembly of the damaged component(s), including all travelling and living costs of the required service engineer(s). An on-site repair, or a justified alternative to reduce the system down time to the minimum, will always be the first service option. A team of properly qualified and skilled service engineers will have to be available.
- **Additional years of warranty will be evaluated positively as stated in the Annex núm. 2.**

CLAUSE 7. CE MARKING

CE MARKING is required.

CLAUSE 8. Delivery and Installation Time

The system must be delivered and installed at ICFO within a maximum period of **10 weeks** from the PO issued by ICFO.

Delivery time is defined as the time elapsed since the PO until the system delivery at ICFO facilities. It includes the manufacture of the system, the transportation, the installation and the acceptance test at ICFO's premises.

CLAUSE 9. Target Price

130.000,00 EUR (VAT excluded).

Castelldefels, on the date of its digital signature

Prof. Dr. Hugues de Riedmatten
GL Quantum Photonics with Solids and Atoms