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Tender

3023/JN - Dilution Refrigerator and Magnet System

UNIVERSITY OF SHEFFIELD

F02: Contract notice

Notice identifier: 2022/S 000-005585

Procurement identifier (OCID): ocds-h6vhtk-031c6d

Published 1 March 2022, 2:52pm

Section I: Contracting authority

I.1) Name and addresses

UNIVERSITY OF SHEFFIELD

Western Bank

SHEFFIELD

S102TN

Contact

James Noble

Email

james.noble@sheffield.ac.uk

Country

United Kingdom

NUTS code

UKE32 - Sheffield

Internet address(es)

Main address

<https://in-tendhost.co.uk/sheffield>

I.3) Communication

The procurement documents are available for unrestricted and full direct access, free of charge, at

<https://in-tendhost.co.uk/sheffield>

Additional information can be obtained from the above-mentioned address

Tenders or requests to participate must be submitted electronically via

<https://in-tendhost.co.uk/sheffield>

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Education

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

3023/JN - Dilution Refrigerator and Magnet System

Reference number

3023/JN

II.1.2) Main CPV code

- 38000000 - Laboratory, optical and precision equipments (excl. glasses)

II.1.3) Type of contract

Supplies

II.1.4) Short description

The Department of Physics and Astronomy at The University of Sheffield, with funding from the Science and Technology Facilities Council (STFC) requires a dilution refrigerator and magnet system for use in a search for hidden sector dark matter. The dilution refrigerator will be appropriate for cooling a two-component payload, consisting of (i) An electromagnetic resonator, such as a conducting-wall resonant cavity; and (ii) Ultra-low-noise readout electronics in as close proximity as possible to the resonator, allowing them to be coupled together. The space for the electromagnetic resonator should be threaded by a static magnetic field of nominal magnitude 8T, The ultra-low-noise readout electronics should be in a magnetic-field-free region, with magnetic field exclusion achieved via a combination of a field compensation coil and passive normal-conducting and superconducting shields mounted in the bore of the compensation coil. The operating base temperature of the refrigerator should be not more than 10mK at the mixing chamber plate, where the cooling power should be at least 12 microwatts at 20mK and at least 400 microwatts at 100mK. The experiment will run cold and at with the magnetic field threading the cavity for at least 6 months at a time without need to be warmed up. The refrigerator should utilize mechanical pre-cooling to a sufficiently low temperature for the dilution refrigerator to operate, so that the only liquid cryogenics that are required are the helium3/helium4 mixture in the closed cycle dilution refrigerator unit and some liquid nitrogen that may be required for a cold trap in the gas handling unit. The system should incorporate its own reliable control system and software for ease of control, and this control system should also be remotely operable from the data acquisition system of the experiment, via an appropriate cable interface. A schedule of tests required to demonstrate function upon delivery of the apparatus are supplied in the technical

specification.

II.1.5) Estimated total value

Value excluding VAT: £685,000

II.1.6) Information about lots

This contract is divided into lots: No

II.2) Description

II.2.3) Place of performance

NUTS codes

- UKE32 - Sheffield

II.2.4) Description of the procurement

The Department of Physics and Astronomy at The University of Sheffield, with funding from the Science and Technology Facilities Council (STFC) requires a dilution refrigerator and magnet system for use in a search for hidden sector dark matter. The dilution refrigerator will be appropriate for cooling a two-component payload, consisting of (i) An electromagnetic resonator, such as a conducting-wall resonant cavity; and (ii) Ultra-low-noise readout electronics in as close proximity as possible to the resonator, allowing them to be coupled together. The space for the electromagnetic resonator should be threaded by a static magnetic field of nominal magnitude 8T, The ultra-low-noise readout electronics should be in a magnetic-field-free region, with magnetic field exclusion achieved via a combination of a field compensation coil and passive normal-conducting and superconducting shields mounted in the bore of the compensation coil. The operating base temperature of the refrigerator should be not more than 10mK at the mixing chamber plate, where the cooling power should be at least 12 microwatts at 20mK and at least 400 microwatts at 100mK. The experiment will run cold and at with the magnetic field threading the cavity for at least 6 months at a time without need to be warmed up. The refrigerator should utilize mechanical pre-cooling to a sufficiently low temperature for the dilution refrigerator to operate, so that the only liquid cryogenics that are required are the helium3/helium4 mixture in the closed cycle dilution refrigerator unit and some liquid nitrogen that may be required for a cold trap in the gas handling unit. The system should incorporate its own reliable control system and software for ease of control, and this control system should also be remotely operable from the data acquisition system of the experiment, via an appropriate cable interface. A schedule of tests required to demonstrate function upon delivery of the apparatus are supplied in the technical specification.

II.2.5) Award criteria

Price is not the only award criterion and all criteria are stated only in the procurement documents

II.2.7) Duration of the contract, framework agreement or dynamic purchasing system

Start date

5 December 2022

End date

6 December 2022

This contract is subject to renewal

No

II.2.10) Information about variants

Variants will be accepted: No

II.2.11) Information about options

Options: No

Section III. Legal, economic, financial and technical information

III.1) Conditions for participation

III.1.2) Economic and financial standing

Selection criteria as stated in the procurement documents

III.1.3) Technical and professional ability

Selection criteria as stated in the procurement documents

Section IV. Procedure

IV.1) Description

IV.1.1) Type of procedure

Open procedure

IV.1.8) Information about the Government Procurement Agreement (GPA)

The procurement is covered by the Government Procurement Agreement: Yes

IV.2) Administrative information

IV.2.2) Time limit for receipt of tenders or requests to participate

Date

4 April 2022

Local time

12:00pm

IV.2.4) Languages in which tenders or requests to participate may be submitted

English

IV.2.6) Minimum time frame during which the tenderer must maintain the tender

Duration in months: 3 (from the date stated for receipt of tender)

IV.2.7) Conditions for opening of tenders

Date

4 April 2022

Local time

12:01pm

Section VI. Complementary information

VI.1) Information about recurrence

This is a recurrent procurement: No

VI.2) Information about electronic workflows

Electronic ordering will be used

Electronic invoicing will be accepted

Electronic payment will be used

VI.4) Procedures for review

VI.4.1) Review body

The University of Sheffield

Sheffield

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Country

United Kingdom