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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](mailto: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

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## 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

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## **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

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## **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

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## **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

S10 2TN

Email

[james.noble@sheffield.ac.uk](mailto:james.noble@sheffield.ac.uk)

Country

United Kingdom