This is a published notice on the Find a Tender service: https://www.find-tender.service.gov.uk/Notice/001865-2022

Tender

Proton range verification detectors

The Christie NHS Foundation Trust

F02: Contract notice
Notice identifier: 2022/S 000-001865
Procurement identifier (OCID): ocds-h6vhtk-030de2
Published 21 January 2022, 2:15pm

Section I: Contracting authority

I.1) Name and addresses

The Christie NHS Foundation Trust

The Christie NHS Foundation Trust, Wilmslow Road

Manchester

M20 4BX

Contact

Mr Chris Robson

Email

christopher.robson4@nhs.net

Telephone

+44 1614468531

Country

United Kingdom

NUTS code

UKD3 - Greater Manchester

Internet address(es)

Main address

https://www.christie.nhs.uk

Buyer's address

https://www.christie.nhs.uk

I.3) Communication

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

https://procontract.due-north.com/

Additional information can be obtained from the above-mentioned address

Tenders or requests to participate must be submitted electronically via

https://procontract.due-north.com/

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Health

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

Proton range verification detectors

Reference number

DN591219

II.1.2) Main CPV code

- 38431000 - Detection apparatus

II.1.3) Type of contract

Supplies

II.1.4) Short description

LaBr3 detectors (crystal + PMT+ voltage divider) required to measure the prompt gammas emitted during proton beam therapy in order to verify proton range

II.1.5) Estimated total value

Value excluding VAT: £130,000

II.1.6) Information about lots

This contract is divided into lots: No

II.2) Description

II.2.3) Place of performance

NUTS codes

- UKD3 - Greater Manchester

II.2.4) Description of the procurement

The PRECISE proton therapy research group at the University of Manchester and the Christie NHS Foundation Trust is developing a system to verify range during proton beam therapy treatments. Range uncertainty is arguably one of the biggest challenges in proton

therapy. Range uncertainty arises from a number of sources: imaging, dosimetry, stopping powers, however, the largest uncertainty is always the patient. Patient setup, highly heterogeneous tissue, implants, or bone/tissue interfaces as well as anatomical changes during treatment can all influence proton range and thus, treatment outcomes. The full potential of proton beam therapy, particularly when there are organs-at-risk in the vicinity of the tumour, cannot be exploited unless these uncertainties are reduced or mitigated.

One possible method of determining proton range is through the detection of the prompt gamma-rays that are emitted naturally during therapy. It has been shown experimentally that the maximum intensity of these prompt gamma rays correlates well with the Bragg peak and end-of-range. By detecting these prompt gamma-rays and determining their origin the proton beam range could be established.

The system being developed is based on an array of scintillator detectors coupled with an image reconstruction algorithm based on gamma-ray coincidences. The detectors of choice are LaBr3 scintillators which exhibit good energy and timing resolution for the detection of the high energy gamma-rays emitted. The typical gamma-ray energy range of interest is 2 – 8 MeV so large crystal, 38.1 mm (1.5”) diameter and 50.8 mm (2”) long, detectors are required in order to obtain full energy photo peaks. As the reconstruction algorithm utilises gamma-ray coincidences, the detectors need to have an energy resolution of 3.5% or less at 662 keV and a coincidence resolving time of 0.5 ns or less. Ideally we are also looking for the detectors to have an anode pulse rise time of 0.8 ns or less and an electron transit time of 16 ns or less.

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

End date

31 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

II.2.13) Information about European Union Funds

The procurement is related to a project and/or programme financed by European Union funds: No

---

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: No

IV.2) Administrative information

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

Date

24 February 2022

Local time

4:00pm

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

English

IV.2.7) Conditions for opening of tenders

Date

3 March 2022

Local time

4:00pm

Section VI. Complementary information

VI.1) Information about recurrence

This is a recurrent procurement: No

VI.4) Procedures for review

VI.4.1) Review body

The Christie NHS Foundation Trust

Wilmslow Road

Manchester

M20 4BX

Country

United Kingdom