

Brachytherapy dosimetry comparisons research assistant (4-month (minimum) short-term post)

The person appointed will be responsible for the establishment of the measurement methods and comparison protocols for two brachytherapy dosimetry comparisons to be organized by the [BIPM](#) and overseen by the Brachytherapy Standards Working Group of the [CCRI](#). The scope of work is appended to this announcement.

Preferred candidates will have a PhD in Physics or Engineering, with a substantial radiation physics background and some practical experience in the field. The ability to communicate with counterparts in our Member States is an essential attribute. The work will be supervised within the Ionizing Radiation Section at the BIPM.

The contract will run from June 2008.

Final interviews will take place at the BIPM on Thursday 22 May.

Applications should be sent, together with a c.v. not later than 16 May to the Head of Section:

allisy-roberts@bipm.org or by mail to:

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Scope of work

Brachytherapy dosimetry comparison protocols in the Ionizing Radiation Section of the BIPM

The scientist will primarily be responsible for the establishment and initial implementation of the protocols for two different brachytherapy dosimetry comparisons to be run for the NMIs.

Ir-192 brachytherapy dosimetry comparison

This comparison of high dose-rate ^{192}Ir for brachytherapy is based on the circulation of transfer instruments and the comparison against a stable reference standard of the instruments' responses.

Actions

1. The equipment, a small well-type ionization chamber and a graphite cavity ionization chamber have been purchased. The protocol needs to be established through discussion with the NMIs using such transfer systems for their customers' calibrations and should describe how these transfer chambers are to be used in the comparison.

2. An appropriate reference also needs to be determined to enable subsequent bi-lateral comparisons to be linked.
3. The two transfer chambers need to be tested against the reference(s) to establish a stable base line for the subsequent, on-site comparison at the various NMIs.
4. The comparison needs to be registered in the KCDB, the NMIs need to be invited to participate in the comparison and they and the CCRI invited to comment on the protocol.
5. The protocol needs to include the circulation procedure and the verification measurements made at the BIPM to ensure the stability of the transfer instruments.
6. Pro-forma reporting forms (including uncertainty budget details) and the comparison report itself need to be designed.
7. Transportation of the transfer instruments to the participants may be envisaged during the period.

I-125 brachytherapy dosimetry comparison

This comparison is based on the issue of characterized I-125 seeds to the participants for them to provide an appropriate measurement of each seed's activity or reference air kerma rate that can then be compared.

Actions

1. A robust method of characterizing the I-125 seeds needs to be established; in possible collaboration with the LNE-LNHB.
2. The characterization protocol should also include a reference measurement of each seed at the BIPM so that each result received can be normalized against the appropriate measurement.
3. An appropriate seed supplier needs to be identified with a commitment to supply the required number of seeds in a single batch.
4. The protocol needs to be written and participants invited to join the comparison and comment, together with the CCRI on the protocol.
5. Once the dates for the comparison can be established, the seeds need to be ordered.
6. Each seed is then characterized according to the protocol and also needs to be measured using a stable reference instrument at the BIPM.
7. The seeds are then packed and distributed to the participants according to the protocol.
8. Pro-forma reporting forms (including uncertainty budget details) and the comparison report itself need to be designed.