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# International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry (IDOS 2026)

**IAEA Headquarters**
**Vienna, Austria**

**5–9 October 2026**
**Organized by the**
International Atomic Energy Agency (IAEA)

# Announcement and Call for Papers

# A. Background

The International Atomic Energy Agency (IAEA) is organizing the International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry (IDOS 2026), building on the successes of previous symposia since 1987.

Through its human health programme, the IAEA has enhanced the capabilities of its Member States to prevent, diagnose and treat health problems by developing and applying nuclear techniques – all within a quality assurance framework. As countries around the world expand their use of ionizing radiation, accurate measurements in radiation dosimetry are vital for safety and effectiveness across medical and industrial applications. Primary standards dosimetry laboratories and secondary standards dosimetry laboratories ensure the traceability of measurements to the International System of Units (SI). In conjunction with the standards developed by these laboratories, dosimetry codes of practice (or protocols) are used to further ensure traceability and to optimize the application of ionizing radiation in medicine. The harmonization of dosimetry protocols is equally important, especially for collaborative multi-centre studies or clinical trials.

Recent technical developments in imaging and radiotherapy affect dosimetry standards, audits and quality assurance (QA) guidance in the fields of external radiotherapy, brachytherapy, radiopharmaceutical therapy, nuclear medicine, diagnostic radiology, and radiation protection in medicine. Computational methods, such as artificial intelligence (AI) and Monte Carlo, are increasingly contributing to many aspects of radiation medicine – adding to the complexity of available tools and the associated requirements. In light of these innovations, there is a need for a scientific exchange at the international level to comprehensively review the status of dosimetry and medical dosimetry applications.

# B. Purpose and Objectives

The symposium will provide an international forum to discuss and disseminate the latest advances in radiation dosimetry for medical application of ionizing radiation, radiation protection and associated standards. By covering all medical specialities that utilize ionizing radiation, the symposium will specifically focus on the fields in which dosimetry standardization is essential: radiotherapy, diagnostic and interventional radiology, radiopharmaceutical therapy and nuclear medicine. Moreover, the symposium will address cross-cutting topics such as artificial intelligence-based dosimetry methods, uncertainty of measurements, and dosimetry audits; outline future trends; and identify areas for improvement. Its proceedings and conclusions will help to provide relevant recommendations for the medical and scientific community.

# C. Themes and Topics

The symposium will cover recent developments in the field of radiation dosimetry standards, applications and quality assurance, with dedicated topical sessions on specific areas from standards

laboratories to medical applications within radiotherapy, diagnostic and interventional radiology, nuclear medicine and radiopharmaceutical therapy.

The theme for this edition of the symposium is: *The heart of dosimetry: where clinical reality meets standards*.

The IAEA welcomes both academic and practice-based contributions on the following topics:

**Fundamentals in radiation dosimetry**

- Fundamentals of dosimetry in external beam radiotherapy
- Fundamentals of dosimetry in brachytherapy
- Fundamentals of dosimetry in nuclear medicine and radiopharmaceutical therapy
- Fundamentals of dosimetry in diagnostic and interventional radiology
- Radiation related quantities, dosimetry methods, and reference data for the safe and efficient application of ionizing radiation in various applications of ionizing radiation

**Radiation dosimetry measurement standards for imaging, therapy and radiation protection**

- International measurement system and comparisons and calibrations in ionizing radiation metrology
- Reports on key comparisons and CMCs
- Standards for absorbed dose to water, air kerma, radionuclide activity
- New developments in dosimetry measurement standards, including water and graphite calorimetry
- Use of calorimeters and transfer standards in clinical settings
- Documentary standards
- Dosimetry codes of practices: developments, testing, implementation and comparison
- Computational methods in radiation metrology
- Characterisation of radiation beams and sources used for calibration
- X ray spectrometry
- Traceability and measurement uncertainty

**Reference dosimetry and comparisons in external beam radiotherapy**

- Status and implementation of national and international dosimetry protocols in external beam radiotherapy (e.g. small field dosimetry)
- Developments in calibration protocols
- Dosimetry for non-standard machine geometries and beam delivery
- Dosimetry in new external beam radiotherapy modalities (e.g. SFRT, ultra-high dose rate RT)
- New data, perturbation and correction factors
- Updates in kilovoltage X ray therapy
- Traceability and uncertainties

**Reference dosimetry and comparisons in brachytherapy**

- Status and implementation of national and international dosimetry protocols in brachytherapy
- Dissemination and clinical use of standards in brachytherapy
- Dosimetry with new radioactive and X ray brachytherapy (eBT) sources
- New data, perturbation and correction factors
- Traceability and uncertainties

**Reference dosimetry and comparisons in proton and light ion beam therapy**

- Status and implementation of national and international dosimetry protocols in proton and light ion therapy

- Basic and new data for dosimetry
- Perturbation and correction factors
- Characterisation of clinical beam qualities
- Calibration of beam monitors
- Dosimetry in ultra-high dose rate proton beams
- Detectors for proton and light ion beam therapy
- Traceability and uncertainties

**Standard dosimetry in diagnostic and interventional radiology**

- Status and implementation of national and international dosimetry protocols in diagnostic and interventional radiology
- Dosimetry standards and calibration of dosimetry and related instruments used in diagnostic radiology and interventional radiology
- Comparisons in diagnostic and interventional radiology
- Challenges and new data in dosimetry in diagnostic and interventional radiology, updating international dosimetry protocols in X ray diagnostic radiology (TRS-457, IEC 61267, etc.)
- Traceability and uncertainties

**Standard dosimetry in nuclear medicine and radiopharmaceutical therapy**

- Status and implementation of national and international dosimetry protocols in nuclear medicine and radiopharmaceutical therapy
- Comparisons in nuclear medicine and radiopharmaceutical therapy
- Harmonization in nuclear medicine and radiopharmaceutical therapy
- Traceability and uncertainties

**Reference dosimetry and comparisons in radiation protection**

- Status and implementation of national and international standards and dosimetry protocols for radiation protection dosimetry
- X and gamma reference radiation for calibration, including data for Am-241 radiation sources
- Neutron dosimetry
- Traceability and uncertainties

**Clinical dosimetry in external beam radiotherapy and brachytherapy**

- Status and implementation of national and international protocols and guidance documents for clinical dosimetry
- Commissioning of brachytherapy sources and applicators
- Commissioning in external beam radiotherapy
- Modelling and verification of dose in external beam radiotherapy and brachytherapy
- Verification of the treatment planning process (algorithms, data input, dose verification etc.) in external beam radiotherapy and brachytherapy
- Dosimetry for imaging devices used in image-guided radiation therapy
- Dosimetry of special procedures (intra-operative radiation therapy, total body irradiation, total skin irradiation)
- In-vivo dosimetry
- Plan-class specific reference field dosimetry
- Patient specific QA

- 3D dosimetry
- Out-of-field dosimetry
- Dosimetry in the presence of magnetic fields (e.g. MRI-linac)
- Dosimetry in advanced brachytherapy and external beam radiotherapy modalities, including motion-management techniques and other emerging trends
- Dosimetry of ultra-high dose rate beams (FLASH therapy)
- Uncertainties

**Clinical dosimetry in diagnostic and interventional radiology**

- Status and implementation of national and international protocols and guidance documents for clinical dosimetry
- Developments in dosimetry for breast imaging, CT, fluoroscopy, and dental imaging
- Photon counting and spectral CT dosimetry
- From air kerma to patient dose
- Mathematical phantoms for dose calculations
- Characterisation of clinical beam qualities for traceable measurements
- Cross calibration and field calibration of dosimeters
- Accuracy of dose indices and Digital Imaging and Communications in Medicine (DICOM)-based dose reporting
- Dose management systems and related utilization
- Dose registries
- Patient specific dosimetry, including foetal dosimetry
- Dosimetry for paediatric radiology
- Uncertainty assessment and use of dosimetry data

**Clinical dosimetry in nuclear medicine and radiopharmaceutical therapy**

- Status and implementation of national and international protocols and guidance documents for clinical dosimetry
- Patient specific and imaging-based dosimetry
- Calibrations and procedures for measurements of activity
- Quantitative imaging of radionuclides
- Transfer of the quantity of radioactivity to clinic
- Pharmacokinetic models for dosimetry and cellular level dosimetry
- Dosimetry for paediatric studies
- Dosimetry for targeted radiopharmaceutical therapy (peptides, antibodies, small molecules)
- Dosimetry for new radiopharmaceuticals for therapy
- Dosimetry for theranostics and hybrid imaging (e.g., PET/CT, SPECT/CT).
- Advances in alpha-emitter dosimetry for targeted therapies
- Dosimetry for novel PET tracers

**Independent dosimetry audits**

- Dosimetry audits in radiotherapy (national and international dosimetry audit networks, postal and on-site audits in reference and non-reference conditions, virtual audits)
- Dosimetry audits of advanced radiotherapy modalities
- Quality and audits of calibration laboratory services
- Principles and importance of dosimetry audits: detector types, phantoms, clinical context and impact, nomenclature, regulatory framework
- Audits in diagnostic and interventional radiology
- Integration of new audit methodologies for radiopharmaceutical therapy
- Audits for accreditation purposes and credentialing for clinical trials
- Comprehensive audits (diagnostic radiology, nuclear medicine, radiotherapy)

- Uncertainty assessment and informed decision making

**Radiation protection dosimetry**

- Use of radiation protection quantities
- Assessment of exposure for workers in medical use of ionizing radiation
- Dosimetry in pulsed X ray fields
- Dosimetry for workplace monitoring
- Dosimetry for individual monitoring, including eye lens, extremities and skin
- Modelling for dose calculation in radiation protection and shielding calculations
- Harmonization of individual dosimetry, including intercomparisons and uncertainty assessment

**Detector technology and applications in dosimetry**

- Dosimetry systems for external beam radiotherapy, brachytherapy, diagnostic and interventional radiology, nuclear medicine and radiopharmaceutical therapy
- Modern instruments for reference and relative dosimetry
- Commissioning and quality assurance of dosimetry systems and the maintenance of dosimetry equipment
- Ionizing radiation metrology regulations, type testing and verification of dosimeters
- Phantoms and auxiliary equipment used for dosimetry

**Artificial intelligence (AI) and computational dosimetry**

- AI applications in radiation dose prediction, optimization and monitoring in radiation therapy, diagnostic and interventional radiology, nuclear medicine and radiopharmaceutical therapy
- Commissioning, performance evaluation, clinical validation and quality assurance of AI-based dosimetry systems in radiation therapy, diagnostic and interventional radiology, nuclear medicine and radiopharmaceutical therapy
- AI in radiation protection dosimetry
- Computationally enabled/enhanced radiation standards
- Interoperability and standardization of AI-based dosimetry systems
- AI-driven personalized dosimetry models
- Patient-specific predictive modelling
- Computational tools for molecular imaging dosimetry
- Digital twins
- Computational dosimetry methods and applications
- Education and training of radiation metrologists and medical physicists in AI
- Ethical and regulatory considerations in the use of AI for radiation dosimetry

**Other related topics**

- Education and training for building and maintaining competency in radiation dosimetry
- Pre-clinical dosimetry
- Dosimetry in small animal irradiators
- Dosimetry in Boron neutron capture therapy (BNCT)
- Dosimetry of microbeams
- Alternative calibration methods
- Microdosimetry
- Nanodosimetry

- Collective effective dose and patient risk
- Quality management system in dosimetry laboratories
- Quality management system in dosimetry audit networks
- Use of digital certificates/digitalisation
- Data security, privacy, and interoperability of dosimetry databases
- Establishment of new dosimetry laboratories
- Dosimetry for radiobiology and radiation research
- Retrospective and emergency preparedness response dosimetry

## D. Structure

The symposium will consist of an opening session, educational courses, topical sessions with oral and poster presentations, a poster highlights session and round-table discussion sessions. A special plenary session will highlight and celebrate fifty years of the IAEA/World Health Organization (WHO) Secondary Standards Dosimetry Network.

The opening session will include a welcome address followed by a keynote on meeting dosimetric accuracy requirements in a rapidly evolving medical world.

A series of topical sessions will then cover select areas of medical radiation dosimetry. Each session will include invited keynote presentations followed by oral presentations and related discussions.

Poster presentations will be an important component of the symposium, with a dedicated plenary session capturing poster highlights.

Symposium rapporteurs will summarize each of the sessions and prepare recommendations.

The closing session will summarize IDOS' main conclusions and will also feature closing remarks.

## E. Expected Outcomes

The symposium will serve as an opportunity for scientists in medical institutions, research centres, universities and standards laboratories to review the latest developments covering the entire dosimetry chain.

It is expected that selected papers will be published in a book of extended abstracts (published through the conference webpage) and slim proceedings (IAEA publication) with the possibility of selected open-source full papers collected on a repository referenceable from the proceedings.

## F. Target Audience

This symposium will be of interest to medical physicists, radiation metrologists and other scientists and researchers working in radiation dosimetry with responsibilities in radiation metrology, external beam radiotherapy (including proton and light ion beam therapy), brachytherapy, diagnostic and interventional radiology, nuclear medicine (including radiopharmaceutical therapy), and radiation protection dosimetry.

The IAEA welcomes and encourages the participation of women, early career professionals and individuals from developing countries.

# G. Call for Papers

Contributions on the topics listed in Section C are welcome as oral or poster presentations. All submissions, apart from invited papers, must present original work, which has not been published elsewhere.

## G.1. Submission of Extended Abstracts

Extended abstracts (approximately 400 to 500 words on one or a maximum of two A4 pages, may contain any charts, graphs, figures and references) should give enough information on the content of the proposed paper to enable the Programme Committee to evaluate it. Anyone wishing to present at the symposium must submit an extended abstract in electronic format using the symposium's file submission system (IAEA-INDICO), which is accessible from the symposium web page (see Section Q). The extended abstract can be submitted through this system from **22 September 2025** until **2 April 2026**. Specifications for the layout will be available on IAEA-INDICO. The system for electronic submission of extended abstracts, IAEA-INDICO, is the sole mechanism for submission of contributed extended abstracts. Authors are encouraged to submit extended abstracts as early as possible. The IAEA will not accept submissions via email.

In addition, authors must register online using the InTouch+ platform (see Section H). The online registration together with the auto-generated Participation Form (Form A) and Form for Submission of a Paper (Form B) must reach the IAEA no later than **2 April 2026**.

**IMPORTANT:** The Programme Committee will consider uploaded extended abstracts only if these two forms have been received by the IAEA through the established official channels (see Section H).

## G.2. Acceptance of Extended Abstracts

The Secretariat reserves the right to exclude extended abstracts that do not comply with its technical or scientific quality standards and that do not apply to one of the topics listed in Section C.

Authors will be informed by **1 June 2026** as to whether their submission has been accepted, either orally or as a poster, for presentation at the symposium.

Accepted contributions will also be reproduced in an unedited electronic compilation of extended abstracts which will be made available to all registered participants of the symposium.

## G.3 Submission of Full Papers

Selected authors of accepted extended abstracts may be requested to submit a full paper in Word format, of about **4 to 8** pages in length. A compilation of full papers (in electronic format) will be made on an online platform and be citable.

Full papers must also be submitted through the IAEA-INDICO file submission system in Word format. Submitting the paper in the indicated electronic format is mandatory. Specifications for the layout and electronic format of the contributed papers and for the preparation of posters will be made available on IAEA-INDICO.

The IAEA reserves the right to exclude papers that do not comply with its quality standards and those that do not apply to one of the topics outlined in Section C above and those that do not meet the expectations based on the information in the extended abstract.

The deadline for electronic submission of the selected full papers as Word files is **15 July 2026**. The IAEA will not accept papers submitted after the deadline.

The IAEA will notify authors of its completed review process of the selected full papers by **31 August 2026**. The deadline for revised selected full papers to be submitted through IAEA-INDICO is **18 September 2026**.

**IMPORTANT:** The system for electronic submission of papers, IAEA-INDICO, is the sole mechanism for submission of contributed papers. Authors are encouraged to submit papers as early as possible. The IAEA will not accept submissions via email.

### G.4 Proceedings

Following the symposium, the IAEA will publish a summary report. The proceedings will be made available to read online.

## H. Participation and Registration

All persons wishing to participate in the event must be designated by an IAEA Member State or should be a member of an organization that has been invited to attend. The list of invited organizations is available on the event web page (see Section Q).

**Registration through the InTouch+ platform:**

1. Access the InTouch+ platform (https://intouchplus.iaea.org):

   - Persons with an existing NUCLEUS account can **sign in here** with their username and password;
   - Persons without an existing NUCLEUS account can **register here**.

2. Once signed in, prospective participants can use the InTouch+ platform to:

   - Complete or update their personal details under 'Basic Profile' (if no financial support is requested) or under 'Complete Profile' (if financial support is requested) and upload the relevant supporting documents;
   - Search for the relevant event (**EVT2501011**) under the 'My Eligible Events' tab;
   - Select the Member State or invited organization they want to represent from the drop-down menu entitled 'Designating authority' (if an invited organization is not listed, please contact Conference.Contact-Point@iaea.org);
   - If applicable, indicate whether a paper is being submitted and complete the relevant information;
   - If applicable, indicate whether financial support is requested and complete the relevant information (this is not applicable to participants from invited organizations);

- Based on the data input, the InTouch+ platform will automatically generate Participation Form (Form A), Form for Submission of a Paper (Form B) and/or Grant Application Form (Form C);
- Submit their application.

Once submitted through the InTouch+ platform, the application together with the auto-generated form(s) will be transmitted automatically to the required authority for approval. If approved, the application together with the form(s) will automatically be sent to the IAEA through the online platform.

**NOTE:** Should prospective participants wish to submit a paper or request financial support, the application needs to be submitted by the specified deadlines (see section O).

For additional information on how to apply for an event, please refer to the InTouch+ Help page. Any other issues or queries related to InTouch+ can be sent to InTouchPlus.Contact-Point@iaea.org.

If it is not possible to submit the application through the InTouch+ platform, prospective participants are requested to contact the IAEA's Conference Services Section via email: Conference.Contact-Point@iaea.org.

Participants are hereby informed that the personal data they submit will be processed in line with the Agency's Personal Data and Privacy Policy and is collected solely for the purpose(s) of reviewing and assessing the application and to complete logistical arrangements where required. Further information can be found in the Data Processing Notice concerning IAEA InTouch+ platform.

# I. Expenditures and Grants

No registration fee is charged to participants.

The IAEA is generally not in a position to bear the travel and other costs of participants in the conference. The IAEA has, however, limited funds at its disposal to help cover the cost of attendance of certain participants. Upon specific request, such assistance may be offered to normally one participant per country, provided that, in the IAEA's view, the participant will make an important contribution to the conference.

If participants wish to apply for a grant, they should submit applications to the IAEA using the InTouch+ platform through their competent national authority (see Section H). Participants should ensure that applications for grants are submitted by **2 April 2026**.

Applications must be accompanied by Participation Form (Form A) and Grant Application Form (Form C) which are autogenerated in the InTouch+ platform.

Applications that do not comply with the above conditions cannot be considered.

Approved grants will be issued in the form of a lump sum payment that usually covers **only part of the cost of attendance.**

## J. Distribution of Documents

A preliminary and final programme will be made available on the symposium web page (see Section Q) prior to the start of the conference. The electronic compilation of extended abstracts will be accessible free of charge to participants registered for the symposium.

## K. Exhibitions

A limited amount of space will be available for commercial vendors' displays/exhibits during the symposium. Interested parties should contact the Scientific Secretariat by email IDOS2026@iaea.org by **2 April 2026**.

## L. Working Language

The working language of the symposium will be English. All communications must be sent to the IAEA in English.

## M. Venue and Accommodation

The symposium will be held at the Vienna International Centre (VIC), where the IAEA's Headquarters are located. Participants are advised to arrive at Checkpoint 1/Gate 1 of the VIC one hour before the start of the event on the first day in order to allow for timely registration. Participants will need to present an official photo identification document in order to be admitted to the VIC premises.

Participants must make their own travel and accommodation arrangements. Hotels offering a reduced rate for participants are listed on https://www.iaea.org/events. Please note that the IAEA is not in a position to assist participants with hotel bookings, nor can the IAEA assume responsibility for paying fees for cancellations, re-bookings and no-shows.

## N. Visas

Participants who require a visa to enter Austria should submit the necessary application to the nearest diplomatic or consular representative of Austria as early as three months but not later than four weeks before they travel to Austria. Since Austria is a Schengen State, persons requiring a visa will have to apply for a Schengen visa. In States where Austria has no diplomatic mission, visas can be obtained from the consular authority of a Schengen Partner State representing Austria in the country in question.

For more information, please see the Austria Visa Information document available on https://www.iaea.org/events.

# O. Key Deadlines and Dates

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| Submission of extended abstracts through IAEA-INDICO | **2 April 2026** |
| Submission of Form B (together with Form A) through the InTouch+ platform | **2 April 2026** |
| Submission of Form C (together with Form A) through the InTouch+ platform | **2 April 2026** |
| Notification of acceptance of extended abstracts for oral or poster presentation | **1 June 2026** |
| Electronic submission of full papers through IAEA-INDICO for selected authors | **15 July 2026** |
| Notification of review of full papers submitted by selected authors | **1 September 2026** |
| Deadline for submission of revised full papers submitted through IAEA-INDICO | **18 September 2026** |
| Submission of Form A only (no paper submission, no grant request) through the InTouch+ platform | **28 September 2026** |

# P. Symposium Secretariat

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Subsequent correspondence on scientific matters should be sent to the Scientific Secretaries and correspondence on administrative matters to the IAEA's Conference Services Section.

# Q.Symposium Web Page

Please visit the IAEA symposium https://www.iaea.org/events/idos-2026 regularly for new information regarding this symposium.