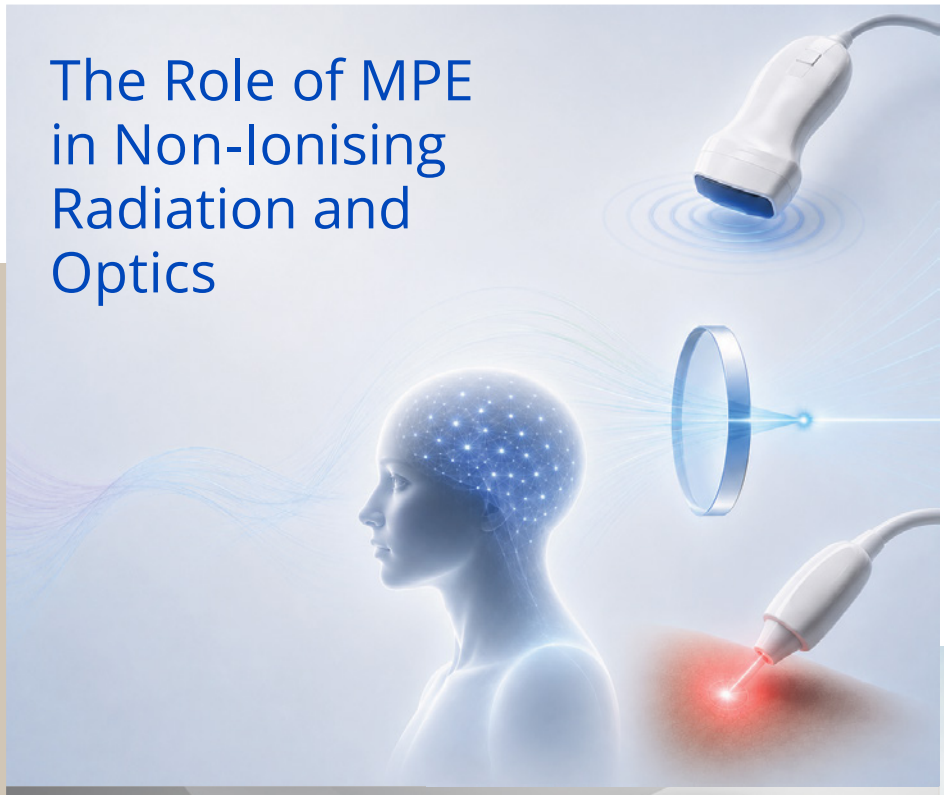
EFOMP

EUROPEAN FEDERATION OF ORGANISATIONS FOR MEDICAL PHYSICS



The Role of MPE in Non-Ionising Radiation and Optics

EMP NEWS

ISSUE 03

AUTUMN 2026

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Galileo Galilei Award 2025

Physica Medica
European Journal of Medical Physics

Special issue on
SUSTAINABILITY IN HEALTHCARE

Medical Physics Contribution

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Editorial

The Role of MPE in Non-Ionising Radiation and Optics



Dear EMP News readers,

It is a pleasure to welcome you to the autumn issue of European Medical Physics News. Autumn is a season of return and consolidation: departments settle back into routine and colleagues across Europe return to their work with renewed focus and fresh priorities. This issue takes that spirit of renewal as an invitation to look at our profession from a wider angle, and dedicates its focus to the role of the Medical Physics Expert in non-ionising radiation and optics.

A field defined by more than ionising radiation

Our professional identity has been shaped, understandably, by ionising radiation. It is where our legal responsibilities are clearest, where our training pathways are most developed, and where the regulatory framework most explicitly names us. However, lasers, optics, ultrasound, non-ionizing radiation sources are now routinely used in surgery, dermatology, ophthalmology, diagnostics and research, with far less regulatory scaffolding than an equivalent ionising installation would require. The physics is no less demanding, the risks to patients and staff are real, and expertise to manage them is essential. Our competence is not in question; it is the frameworks around it that differ considerably between departments, institutions and countries across Europe.

This issue includes a valuable example of how such a framework can be built in practice. Through a dedicated laser safety working group and sustained participation in national standardisation, colleagues contributed to a new standard that defines training requirements and distinguishes between two levels of laser safety responsibility, from routine management to comprehensive assessment and oversight. The European dimension makes this a shared agenda: an EFOMP working group has surveyed practice across the continent and found substantial differences in procedures, standards and regulatory frameworks, and those findings will feed into a forthcoming policy statement aimed at harmonisation.

At the scientific frontier

Non-ionising radiation is not only a safety responsibility but one of the most active frontiers of quantitative imaging, and this issue offers an elegant demonstration from ultra-high field MRI. Proton density fat fraction mapping has become an important biomarker for tissue composition, yet it depends on separating fat and water accurately, which becomes markedly harder at ultra-high field, where the phase between the two signals evolves too quickly for the small number of echo times used in conventional acquisitions. It is medical physics at its most characteristic: a careful diagnosis of why a measurement fails, and a redesign of the acquisition to make it trustworthy.

Sustainability: a responsibility across every modality

Alongside our expanding scope sits a responsibility that can no longer be set aside, and i am glad to see it highlighted in this issue's Editor's Choice selection from Physica Medica, as well as EFOMP's president announcement on the journal's special issue on sustainability in healthcare. The featured study offers one of the first estimates of the carbon footprint of a PET/CT examination, and its most useful finding is where the impact actually lies: not in waste or consumables, but overwhelmingly in patient and staff travel and in the power drawn by scanners, including while they sit idle. The mitigation strategies that follow are strikingly within our reach, from low-power states between examinations to switching off ancillary equipment overnight and rethinking pathways to reduce unnecessary journeys. These are decisions about equipment behaviour, protocols and workflow, which is to say decisions in which medical physicists have both the technical authority and the daily influence to make a difference. Sustainability, like safety, is not a separate agenda bolted onto our work; it is a dimension of doing our work well, and it applies equally to a linac, a PET scanner, an MRI system and a laser suite. The remaining selections are no less thought-provoking, spanning the adoption of generative AI among medical physicists, MRI-guided dose painting in recurrent glioblastoma, and a white paper on author responsibility in peer review.

Competence and recognition

Our continuing interview series on the path to MPE status across Europe returns in this issue with a national perspective in which the profession holds a clearly defined legal role under radiation protection legislation, supported by a structured supervised training period, documented competencies reviewed by the competent authority, and regular recertification. An EFOMP-endorsed shielding course reported in this issue makes a complementary point: by covering radiology, nuclear medicine and radiotherapy together and closing with hands-on measurements in real departments, it showed that what matters is not only applying formulas but interpreting results and asking whether they reflect the reality of the facility. That same discipline of verification runs through the account of EPID-based in-vivo dosimetry in routine clinical use, and through the annual report of the Special Interest Group for Radionuclide Internal Dosimetry, whose members have built webinars, focus groups, schools and a major international symposium. Sustained collective work of this kind is how a subfield acquires standards, evidence and education, and it is a model worth remembering as non-ionising practice matures.

Looking ahead

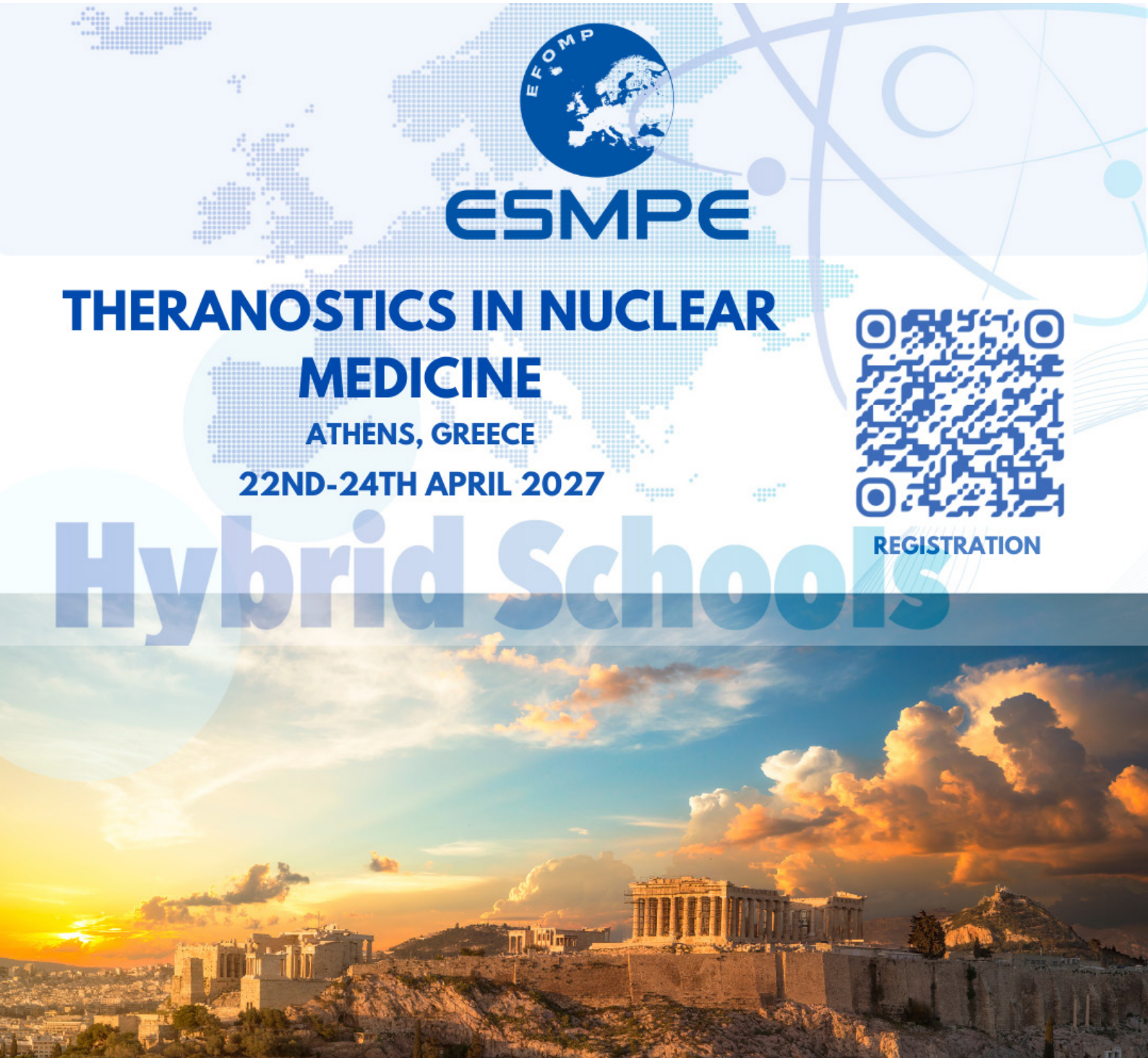
Taken together, the contributions in this issue describe a profession whose competence extends well beyond the boundaries within which it was first defined, and whose responsibilities now reach from optical safety and quantitative imaging to the environmental impact of the technologies we operate. Making that competence visible, recognised and properly supported by

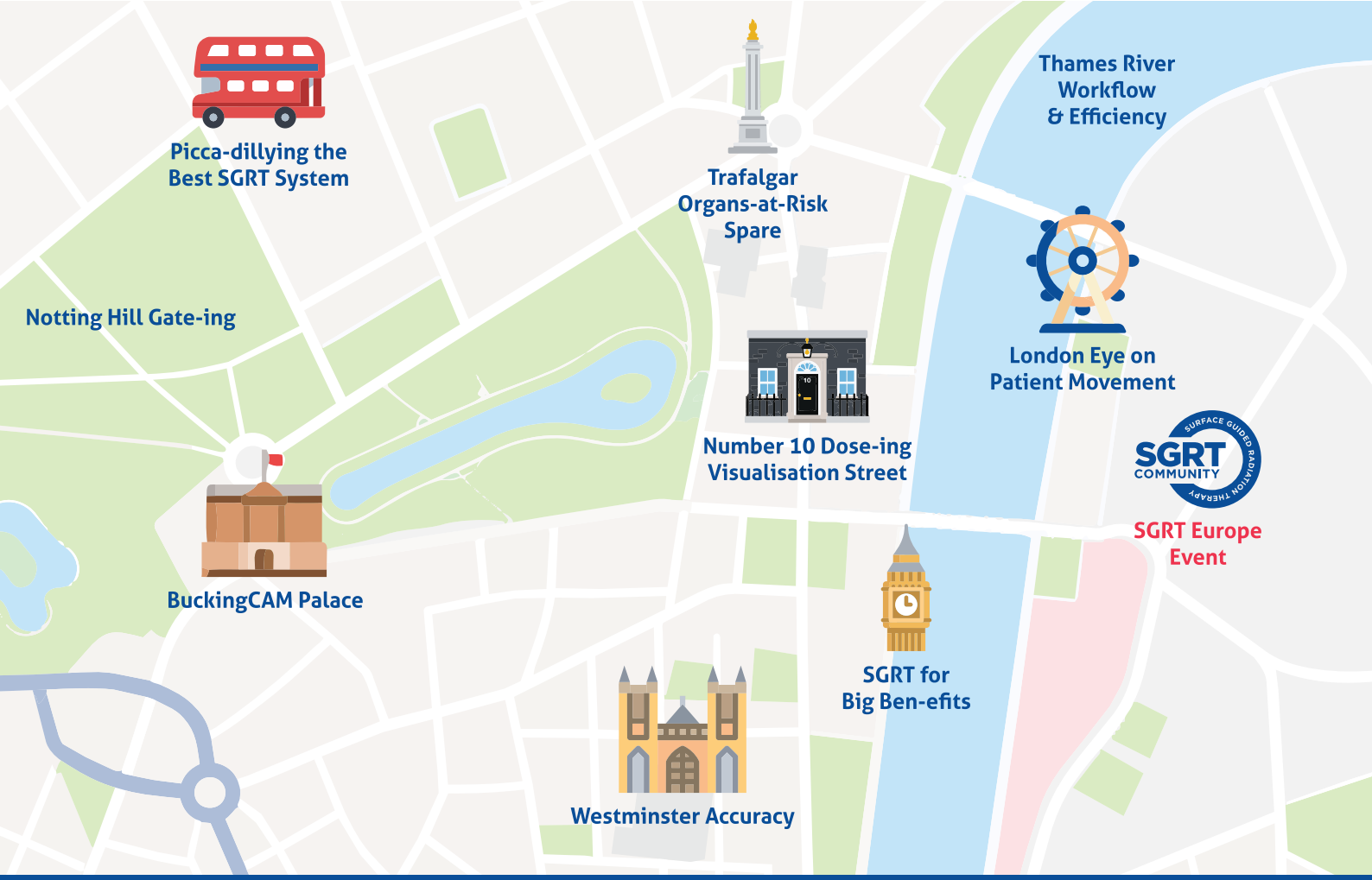
training and legislation is one of the most important tasks ahead of us. I hope this autumn issue offers you both practical ideas for your own department and a renewed sense of how much our field has to contribute across the whole spectrum of radiation.

Warm regards,
Irene Polycarpou
Chair, EFOMP Communications and Publications Committe



Dr Irene Polycarpou is an Associate Professor in Medical Physics and Chair of the Department of Health Sciences at European University Cyprus, with research expertise in PET and SPECT imaging and multi-modality simulation.





A LEARNING EVENT ON *ALL THINGS* SGRT

SGRT COMMUNITY

A to Z with SGRT



London County Hall
[next to the London Eye]

03-04 Dec, 2026

- Latest evidence
- Workflow optimisation
- QA commissioning
- Indication expansion workshops
- Case studies
- Expert sessions
- Networking

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EFOMP President's Report

Advancing Healthcare through Physics: Bridging Science and Patient Care for a Sustainable Future – European Congress of Medical Physics 2026



Medical Physics is helping shape a new era of healthcare, where scientific innovation, environmental sustainability, and patient-centred care converge. As the theme of the European Congress of Medical Physics 2026 highlights, the future of healthcare depends not only on technological excellence but also on the ability to deliver high-quality, equitable, and sustainable solutions that respond to the needs of patients, healthcare professionals, and society.

Medical physicists have an important part to play in this vision by developing and implementing advanced imaging and therapeutic technologies that improve diagnostic accuracy, treatment precision, while optimizing the use of resources towards achieving better health outcomes and reducing environmental impact.

At the same time, the healthcare landscape is evolving rapidly, bringing challenges that would have seemed futuristic or improbable only a few years ago. These include the integration of artificial intelligence into clinical practice, the growing threat of cyberattacks targeting sensitive health data, and the rapid spread of medical misinformation through social media platforms. Addressing these emerging challenges requires multidisciplinary collaboration, responsible implementation, and a strong commitment to patient safety and public trust.

Equally important is the active involvement of patients throughout the healthcare planning journey from prevention and early detection to access to treatment, follow up, quality of life and their ability to maintain a fulfilling working life. Patient engagement promotes shared decision-making, improves communication, enhances care adherence, and ensures that technological advances are aligned with real clinical needs and patient expectations. By collaborating with patient organizations, clinicians, researchers, industry, regulators, policymakers and funders, medical physicists contribute to the design and evaluation of proactive, accessible and inclusive healthcare systems that prioritize both innovation and human values.

"Patient Engagement: The Missing Dimension of Medical Physics?"

These principles are further explored during a dedicated round table at ECMP26 'Impact of Multidisciplinary Team Awareness on patient and family emotional well-being during diagnosis and treatment' which includes speakers representing patient organisations, including the Asociación

Española Contra el Cáncer and Cancer Patients Europe. The discussion brings together diverse perspectives on empowering patients to play an active role not only in their own care, but also in shaping the practices and policies that influence their lives. It also addresses a broader gap in a holistic approach to patient-centred care: the distance that can exist between the regulatory approval and scientific validation of new therapies, technologies, and diagnostic tools and their effective implementation in clinical practice, which may delay or limit their real-world benefit for patients. This requires coordinated actions across government, health care, education, finance, industry and society.

Within this implementation pathway, the contribution of medical physicists—and, more broadly, of the multidisciplinary team working behind every treatment and diagnostic procedure—often remains largely invisible to patients. Helping patients understand who these professionals are, how they collaborate, and how their combined expertise safeguards the quality, safety, accuracy, and effectiveness of care can strengthen confidence and trust in the healthcare system.

Greater patient awareness is also important for the future of medical physics itself: establishing medical physics more clearly as a healthcare profession requires not only recognition within the scientific and clinical communities, but also recognition by patients, patient organisations and caregivers, who can become active advocates for the profession and its contribution to high-quality care. At the same time, closer engagement with patients exposes an important weakness in our own professional preparation: medical physics education has traditionally placed much greater emphasis on scientific and technical competence than on the knowledge, skills, and competences (KSCs) required for effective patient communication.

The involvement of psycho-oncology experts in this discussion provides an important perspective on understanding psychological phenomena in our patients such as fears, uncertainty, anxiety, trust, while also helping to define the communication-related KSCs that should become part of the curricula and professional development of clinical medical physicists, medical physicists, and Medical Physics Experts. We explore the value of personalised information in supporting patients and their families to make informed decisions, while highlighting the often unseen yet essential contribution of medical physicists.
Depending on the clinical setting, patients may encounter medical physicists directly, while in other areas their expertise remains largely behind the scenes. Do we want to remain part of the team patients never see or should we embrace the growing potential for direct medical physicist–patient consultations as part of modern healthcare?

"Sustainability in Healthcare: The Medical Physics Contribution"

Sustainability extends beyond environmental considerations to encompass economic resilience and social responsibility, ensuring that medical technologies remain accessible for present and future generations. The interdisciplinary nature of medical physics community creates a unique opportunity to bridge scientific discovery with practical healthcare solutions, encouraging collaboration across disciplines to address global challenges such as increasing healthcare demands and costs, limited resources, and health inequalities.

Complementing the sustainability focus of the Congress, Physica Medica, the European Journal of Medical Physics (EJMP) will publish a Focus Issue on Sustainability in Medical Physics, coordinated in collaboration with the International Organization for Medical Physics (IOMP) and the European Federation of Organisations for Medical Physics (EFOMP) [1].

The special issue will gather invited contributions from the IOMP - International Medical Physics Week together with selected papers inspired by ECMP2026. The topic of the issue recognizes the urgent need to embed environmental, economic, and social sustainability into healthcare systems. As healthcare systems globally face increasing pressures, our profession is uniquely positioned to contribute solutions that are efficient, resilient, and sustainable. Whether by reducing energy consumption in imaging and therapy, minimizing waste in clinical workflows, or deploying innovative models in resource-limited settings, the work we do directly improves patient outcomes and environmental stewardship.

Together, the ECMP26 scientific programme, the patient engagement Round table, and the EJMP dedicated Focus Issue reinforce EFOMP's commitment to positioning medical physics as a driving force for a healthcare spectrum that is innovative, people-centric, and sustainable on a global scale.

References

[1] Special issue on Sustainability in Healthcare - Medical Physics Contribution



Efi Koutsouveli is a Medical Physicist, Radiation Protection Expert, and Laser Safety Officer at Hygeia Hospital, Athens, Greece (since 1993). Her work focuses on radiation oncology, hospital quality management, and oncology information systems. She is EFOMP President and received the 2019 IOMP-IDMP award for promoting medical physics to a broader audience.

Physica Medica
European Journal of Medical Physics

Special issue on SUSTAINABILITY IN HEALTHCARE

Medical Physics Contribution



Submission deadline:
15 DECEMBER 2026

ENVIRONMENTAL
Protect our planet

SOCIAL
Promote equity and wellbeing

ECONOMIC
Ensure efficiency and resilience

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International Organization for Medical physics (IOMP)

SPECIAL ISSUE INFORMATION

A global priority: Embedding environmental, economic, and social sustainability into healthcare.

Sustainable by design: Exploring approaches that integrate sustainability across the healthcare value chain.

Responding to challenges: Addressing climate change, rising costs, resource constraints, and inequalities in access to healthcare.

Practical solutions: Reducing energy consumption, minimising waste, and improving the efficiency of medical practices.

Optimising clinical practice: Improving protocols, energy efficiency, resource use, and patient and environmental outcomes.

Collaboration and capacity building: Contribution of medical physics, interdisciplinary collaboration, and education to build resilient healthcare systems.

Sustainable quality assurance: Developing cost-effective, scalable quality assurance approaches.

Low and Middle Income Countries: Addressing sustainability challenges including infrastructure, resources, workforce, brain drain, and equitable access to technology.

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IOMP

Invited papers origine from the International Medical Physics Week on 'Sustainability in Healthcare: The Medical Physics Contribution' and the European Congress of Medical Physics (ECMP) ' Advancing Healthcare through Physics: Bridging Science and Patient Care for a Sustainable Future'.

EFOMP Secretary General Report

EFOMP Governing Committee Updates!

I hope everyone had a restful summer. I enjoyed wonderful family time in Liguria and Tuscany, where I also met two of the EFOMP AIFM NMO delegates. Thank you to Simone Busoni and Lorenzo Mazzoni for welcoming my family so warmly to a BBQ at Simone's home in Florence. One of my favourite things about being involved with EFOMP is the friendships made along the way.

EFOMP Committees

Congratulations to the new chair of our Professional Matters Committee, Jaime Martínez Ortega from SEFM, Spain. Jaime took up the role in July. You can read more about why Jaime applied for this role in an article in this edition of EMP news.

The Education and Training Committee designed a quick survey in order to collect feedback about the NEW e-learning platform e-LEMENT (e-Learning for Education in MEdical physics and New Technologies) and give the opportunity to explore the potentiality of e-learning. Did you know that you automatically have access to our eLearning Platform if you are an EFOMP Individual Associate Member? This survey takes less than 5 minutes! Follow this link to have your say.

EFOMP Schools (ESMPE) Updates

ESMPE organises medical physics education and training events specifically targeted to Medical Physicists who are already Medical Physics Experts or would like to achieve Medical Physics Expert (MPE) status. The schools are accredited by an independent body (the European Board of Accreditation for Medical Physics) to ensure that they are at the required educational level, i.e., Level 8 of the European Qualifications Framework. We held elections in May for three positions on the ESMPE Board. The following people were elected for a three year term and we wish them success in their new roles.

ESMPE Board Member	NMO/Country
Natalia Saltybaeva	SSRFM, Switzerland
Oliver Blanck	DGMP, Germany
Tiago Ventura	APFISMED, Portugal

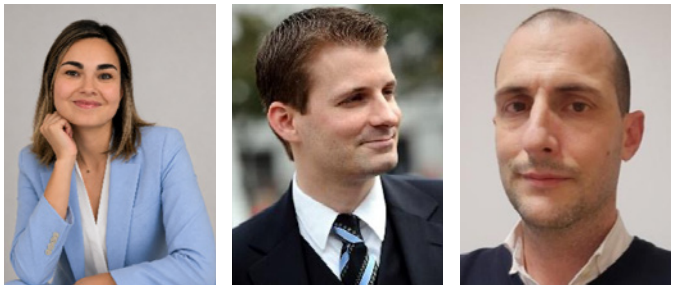


Figure 1. ESMPE Board appointments: Natalia Saltybeava, Oliver Blanck and Tiago Ventura

We recently launched registration for two new schools in 2027. ESMPE on Dosimetry for Radiology, Diagnostic Imaging (CT, Mammography, PET, SPECT, CBCT) / Radiation Therapy takes place in Prague, February 2027 and ESMPE on Theranostics including gamma camera technology will be held in Athens, April 2027. Registration is via the EFOMP website.

Marie Curie among figures considered for new euro banknotes

The European Central Bank (ECB) has proposed featuring Marie Curie on a future €20 note as part of a redesign celebrating notable European cultural and scientific figures. Her inclusion recognises her

pioneering work in physics and chemistry, which helped establish the foundations of modern medical physics and radiation therapy. European citizens can vote for their preferred design, so please take a few minutes to cast your vote. I have included my favourite proposed design here.



Figure 2. Marie Curie Proposed Bank note

Projects Updates

The OPTIMIZE-RT Project dedicated to reducing radiation doses to radiotherapy patients. They held their kick off meeting last year in Malta. The project brings together a prestigious multidisciplinary consortium to develop an education programme for Radiographers/Radiation Therapists, Medical Physicists, Oncologists, Quality Managers, and other professionals working with CBCT. They launched a survey earlier this year which many EFOMP members took part in. By the project's end, OPTIMIZE-RT aims to deliver free, high-quality training resources that will empower healthcare professionals to reduce cumulative radiation doses for thousands of cancer patients across Europe.



Figure 3. OPTIMIZE-RT Project logo

An educational event, "Optimisation of CBCT Imaging in Radiotherapy," will take place on 16 October 2026 at the Fondazione IRCCS San Gerardo dei Tintori in Monza, Italy. The event is dedicated to Radiation Oncologists (ROs), Medical Physicists (MPs), and Radiation Therapists/Radiographers (RTTs), providing an opportunity to explore best practices and current approaches to optimising CBCT imaging in radiotherapy. Registrations are now officially open, with training delivered in English and free registration for all participants. Click Here to register

Annual General Council Meeting in Valencia, Spain during ECMP 2026

The invitations have been sent and the agenda is prepared! I am looking forward to meeting our NMO delegates at our Annual Council Meeting at the Congress on Saturday 23rd of September 2026.



Figure 4. Valencia city (Serrano Towers and old river garden)

Finally, please contact me at secretary@efomp.org with any queries or to discuss EFOMP attendance at your scientific meetings. To keep up to date with our activities, follow us on social media and visit our website.



Brenda Byrne is a Principal Physicist working in the Mater Misericordiae University Hospital, Dublin, Ireland. Her primary areas of interest are diagnostic radiology, nuclear medicine and radiation protection. She has been a registered radiation protection adviser (RPA) since April 2009 and is a recognised medical physics expert (MPE). Brenda is the current Secretary General of EFOMP and Past Chair of the EFOMP Professional Matters Committee.

Physica Medica: Editor's Choice

For this autumn issue of EMP News I selected the following 4 contributions, recently published in Physica Medica (EJMP), which particularly attracted my attention. They are very different from one another: an environmental sustainability study, a survey on generative artificial intelligence in professional practice, a phase I–II clinical trial on advanced radiotherapy for recurrent glioblastoma, and an editorial white paper on peer review, and together they nicely reflect the diversity of topics that our journal welcomes and publishes.



M. Cracknell et al. **An estimation of the carbon footprint of Positron Emission Tomography (PET) imaging** Phys. Med. 2026;145: 105794 https://doi.org/10.1016/j.ejmp.2026.105794

Healthcare accounts for a significant share of global greenhouse gas emissions, and medical imaging, with its high energy demand and reliance on complex infrastructures, is under increasing scrutiny within initiatives such as the NHS Greener programme. In this study, the authors provide what is, to their knowledge, the first estimate of the carbon footprint of a PET/CT scan in a UK setting, using the Paul Strickland Scanner Centre as a case study and complementing it with travel data from the Christie and Glenfield Hospitals. The functional unit of the analysis was a single FDG PET/CT appointment, and the study boundaries included patient and staff travel, waste streams, energy consumption of the two scanners and the ancillary equipment, HVAC of the control and patient areas, and consumables; production and distribution of the radiotracer and the embedded footprint of the facility itself were explicitly excluded. The overall footprint was estimated at 19 kg CO2e per patient for the Siemens Biograph mCT and 21 kg CO2e for the older GE VCT, with patient travel and scanner power (including idle consumption) emerging as the dominant contributors, followed by staff travel; waste and consumables together accounted for less than 3%. To put these numbers into perspective, the authors compare them with an earlier Physica Medica estimate of the footprint of external beam radiotherapy by Chuter

et al. (Phys. Med. 2023;112: 102652 https://doi.org/10.1016/j.ejmp.2023.102652), showing that a PET/CT scan represents roughly 4–10% of the footprint of a typical radiotherapy course, a natural connection, given that one of the co-authors of the present work also led that earlier radiotherapy analysis. The authors then outline realistic mitigation strategies, from electrifying transport to placing scanners in low-power states and turning off ancillary equipment overnight. Overall, this work provides a useful and reproducible baseline for the sustainability discussion within the medical physics community, and nicely complements the growing body of Physica Medica publications on the environmental impact of our practice.

L.E. Lubis et al. **Beyond hype: Adoption and attitudes toward generative AI among Indonesian medical physicists** Phys. Med. 2026;144: 105759 https://doi.org/10.1016/j.ejmp.2026.105759

Large language models such as ChatGPT have quickly moved from novelty to everyday tool in many scientific and clinical environments, but data on how medical physicists are actually engaging with them, especially outside the traditional high-income settings, remain scarce. In this cross-sectional survey, conducted in October 2025 among 165 Indonesian medical physicists spanning clinical, academic and trainee roles, the authors provide a detailed snapshot of adoption patterns, use cases, perceived benefits and concerns regarding generative AI in the profession. The results reveal an extraordinarily high uptake: 95% of respondents were aware of LLMs and 96% had used one, with 72% using them at least several times per week and ChatGPT being by far the dominant platform. The most common applications were literature search and summarisation (67%), technical or clinical problem solving (58%), professional communications (46%), preparation of teaching materials (41%) and scientific writing (39%), while direct clinical decision-making was, appropriately, rarely delegated to the AI. Perceived productivity gains were striking, with 61% reporting a large improvement and none reporting a decrease. Yet the picture is far from uncritical: trust in accuracy was only moderate (11% high trusters), 94% of users routinely verified outputs, and the leading concerns were hallucinations, overreliance, limited domain understanding, ethical and plagiarism risks, and data privacy. Despite these caveats, 94% anticipated a positive future impact on the profession and 79% supported the inclusion of AI competencies in the training curriculum. Overall, this survey nicely illustrates a community of critical, curious early adopters, and it offers a valuable reference point for other national medical physics associations reflecting on how to guide the responsible use of generative AI.

A. Botti et al. **A pipeline for MRI-guided dose painting by number radiation therapy: GLIORAD — a phase I-II clinical trial in recurrent glioblastoma** Phys. Med. 2026;145: 105773 https://doi.org/10.1016/j.ejmp.2026.105773

Glioblastoma multiforme remains one of the most devastating diagnoses in adult oncology: despite maximal surgery, chemoradiotherapy and temozolomide, more than 90% of tumours recur close to the surgical cavity within a matter of months, and re-irradiation has long been a controversial option because of the risk of severe toxicity to the surrounding brain. Any methodological advance that helps deliver a more biologically informed and safer re-treatment is therefore of genuine clinical importance, and this paper is a particularly good example of how medical physicists can lead the design and successful delivery of such an advance. In the GLIORAD phase I–II trial (NCT04610229), the authors developed and clinically implemented a full workflow for MRI-guided voxel-based dose painting by numbers (DPBN) in twelve patients with recurrent glioblastoma, using the apparent diffusion coefficient (ADC) map from diffusion-weighted MRI as a surrogate of tumour cellularity to pre-

scribe, pixel by pixel, doses ranging from 30 to 50 Gy in five fractions. From the physicist's side, the study describes the complete pipeline: conversion of ADC values into a continuous DPBN prescription, patient-specific discretisation into up to nine dose levels via a genetic-algorithm optimisation of the Vanderstraeten quality factor, VMAT planning on a commercial TPS, robustness assessment against ±1 mm isocentre shifts using the ΔVH formalism, and pre-treatment patient-specific quality assurance according to the AAPM TG-218 recommendations. The results demonstrate that highly heterogeneous, biologically motivated dose distributions can be delivered with clinically acceptable accuracy, robustness and gamma passing rates in a standard clinical environment, and that the workflow is TPS-independent and portable to other biomarkers and anatomical sites. Overall, this work is a fine illustration of the pivotal role that medical physicists play in translating an imaging biomarker into a safe, deliverable and personalised treatment for a tumour where every gain in precision genuinely matters.

L.G. Marcu et al. **The Declaration of Adelaide — White paper: Guidelines for author responsibility in peer review** Phys. Med. 2026;148: 105834 https://doi.org/10.1016/j.ejmp.2026.105834

The fourth item I selected for this issue is not an original paper but an editorial white paper that I found particularly timely and worth bringing to the attention of our community. Originating from discussions among journal editors during the IUPESM World Congress on Medical Physics and Biomedical Engineering 2025 in Adelaide, this document, co-published across several journals in our field including Physica Medica, articulates a concise ethical code for authors in their role as peer reviewers. The authors, a group of editors of international medical physics and radiation protection journals, remind us of a simple but often overlooked reality: every published article typically requires between two and four reviewers, and while submissions are growing exponentially, the pool of willing and qualified reviewers is not. From this premise, they outline a set of clear expectations for authors when invited to review — replying promptly to invitations, honouring accepted commitments through to revisions, providing unbiased and constructive reports, declaring conflicts of interest, respecting confidentiality, following publisher guidelines on the use of AI (which is generally not permitted in the review process because of confidentiality), and avoiding coercive citation practices. The paper also highlights the personal and professional benefits of reviewing, including recognition through platforms such as ORCID, and reviews the various initiatives that major publishers have put in place to support and train reviewers, particularly early-career ones. Overall, this is a short but important document that deserves to be read, discussed and internalised across our community: sustaining a healthy peer-review ecosystem is, ultimately, a shared responsibility, and one that directly protects the credibility of the science we publish.



Iuliana Toma-Dasu, Editor-in-Chief of Physics Medica – European Journal of Medical Physics.

6th ECMP 2026

European Congress of Medical Physics

23-26 September 2026 | Valencia | **Spain**

Advancing Healthcare through Physics:
Bridging Science and Patient Care for a Sustainable Future

Social Activities

Opening ceremony and Welcome Cocktail

Wednesday, September 23rd | **6.00h PM**
Valencia Conference Centre

Book it here



Paella by the sea

Thursday, September 24th | **7.30h PM**
Patacona Beach

Activity priced from €27.5 with an early-bird rate

More information

Book it here



Congress Networking Dinner

Friday, September 25th
Palau de les Arts Reina Sofía

Activity priced from €99 with an early-bird rate

This year, the evening will be presented in a cocktail-style format, designed to create a more relaxed, dynamic atmosphere. Guests will be free to move, mingle, and connect while enjoying a selection of high-quality food and drinks – making it the perfect setting for meaningful conversations, networking, and socialising with fellow attendees.

Book it here



See you in **Valencia**
from **September 23rd to 26th!**

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Laser Safety in Healthcare: The Italian Experience and European Perspective



Medical lasers are increasingly used across a wide range of clinical applications, making effective safety management essential for both patients and healthcare professionals. In Italy, the Italian Association of Medical Physics (AIFM) has progressively strengthened its activities in this field through professional collaboration, training, and participation in the development of national standards.

AIFM established a Laser Safety Working Group to connect members involved in laser safety and promote the exchange of experience and best practices. Led by Andrea Guasti (USL Toscana Sud Est) and Stefano Andreoli (ASST Papa Giovanni XXIII), the group provides a forum for discussing emerging challenges, regulatory developments, and practical solutions for the safe use of lasers in healthcare.

At national level, technical standards are developed by the Italian Electrotechnical Committee (CEI). Its Technical Committee 76 (CT 76) focuses on the safety of optical radiation and laser equipment. AIFM members actively participate in CT 76, bringing the perspective of medical physicists into the standardization process and contributing to dialogue among healthcare professionals, researchers, manufacturers, and industry.

A major recent development was the publication, in November 2024, of the Italian standard CEI 76-17, which provides a comprehensive framework for laser safety management. The standard

defines training requirements and responsibilities for professionals involved in laser safety in several sectors, including healthcare, and distinguishes between different levels of operational complexity.

In particular, CEI 76-17 identifies two professional roles: Laser Safety Officer I (LSO-I), responsible for routine safety management, and Laser Safety Officer II (LSO-II), responsible for more comprehensive safety assessment and oversight. The standard therefore provides clearer guidance to employers when appointing qualified personnel for laser safety activities.

Medical Physics Experts (MPEs) already receive extensive education and training in laser safety under the Italian regulatory framework. Through its representatives in CT 76, AIFM addressed the relationship between MPE training and the requirements of CEI 76-17 in a policy statement published in Physica Medica. This supports the role of appropriately trained MPEs as LSO-II, provided that their competence is maintained through periodic refresher training. AIFM also organizes dedicated educational activities to support continuing professional development in this area.

However, laser safety in healthcare extends beyond professional qualifications. Hospitals also need clear procedures for equipment procurement, definition of minimum technical requirements, documentation review, acceptance testing, and periodic safety checks. To address these practical aspects, AIFM is developing a Technical Guide on the safe use of lasers in healthcare, with significant contributions from members involved in CT 76. The aim is to translate technical standards into practical recommendations that can be implemented in everyday clinical practice. The need for a more coordinated approach is also emerging at the European level. EFOMP has established a dedicated working group, including AIFM members, which conducted a survey on laser safety management in healthcare across Europe. The survey highlighted substantial differences among countries in procedures, standards, and regulatory frameworks.

These findings will contribute to a forthcoming EFOMP policy statement aimed at promoting greater harmonization of laser safety practices across Europe. The Italian experience illustrates how cooperation between professional societies, standardization bodies, and healthcare institutions can support this process and help ensure that the growing use of medical lasers is accompanied by consistently high standards of safety for both patients and staff.



Michelangelo Biondi, PhD, is a Medical Physics Expert and Laser Safety Officer at Azienda USL Toscana Sud-Est, Italy. He holds a specialization in Medical Physics from the University of Florence and a PhD in Experimental Physics from the University of Siena. He contributes to CEI CT-76, AIFM, and EFOMP activities on laser safety

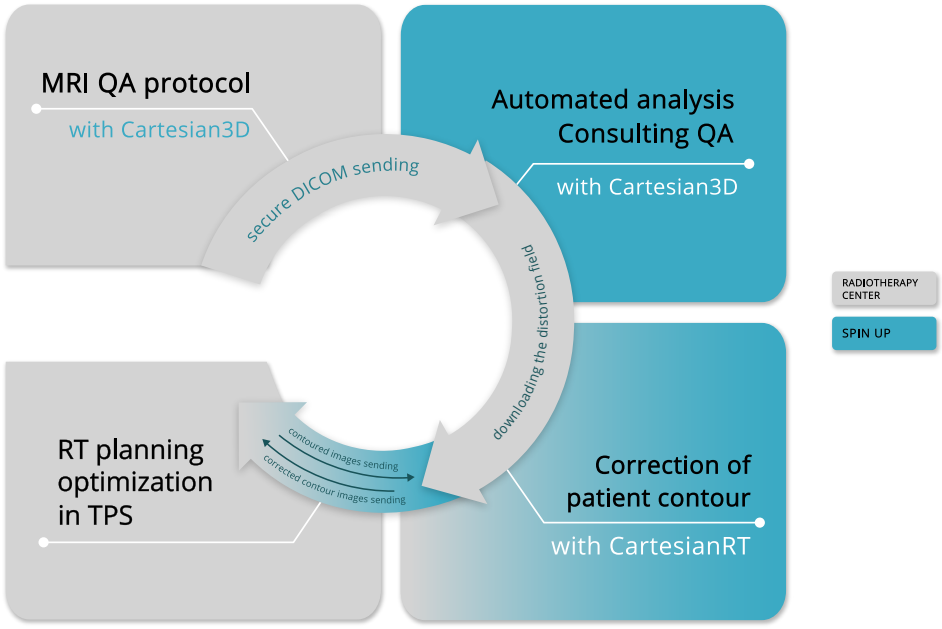
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ANALYSIS OF GEOMETRIC DISTORTIONS IN MRI

ACQUISITION AND ANALYSIS OF CARTESIAN3D PHANTOM IMAGES



CORRECTION OF DISTORTIONS ON PATIENT RT CONTOURS

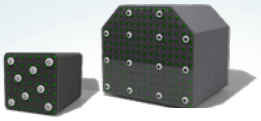
SOLUTION FOR CHARACTERIZATION OF
MRI MACHINE-SPECIFIC DISTORTIONS
IN RADIOTHERAPY

CARTESIANQA: A TURNKEY SOLUTION

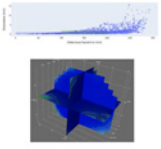
- **IN ACCORDANCE WITH AAPM RECOMMENDATIONS (TG 284)**
- **LONG-TERM MRI PERFORMANCE MONITORING**
- **CLINICAL SEQUENCE OPTIMIZATION**

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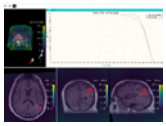
→ **CARTESIAN3D PHANTOMS**
HEAD + BODY



→ **CARTESIANQA**
WEBAPP SOLUTION FOR QA FOLLOW-UP BASED ON AAPM RECOMMENDATIONS



→ **CARTESIANRT MODULE**
DISTORTION FIELD OVERLAY
PATIENTS SPECIFIC EVALUATION OF RT STRUCT ERROR WITH DICE HAUSDORFF AND DVH CRITERIA



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Imaging how we see - How biophotonics may open avenues retinal diagnostics

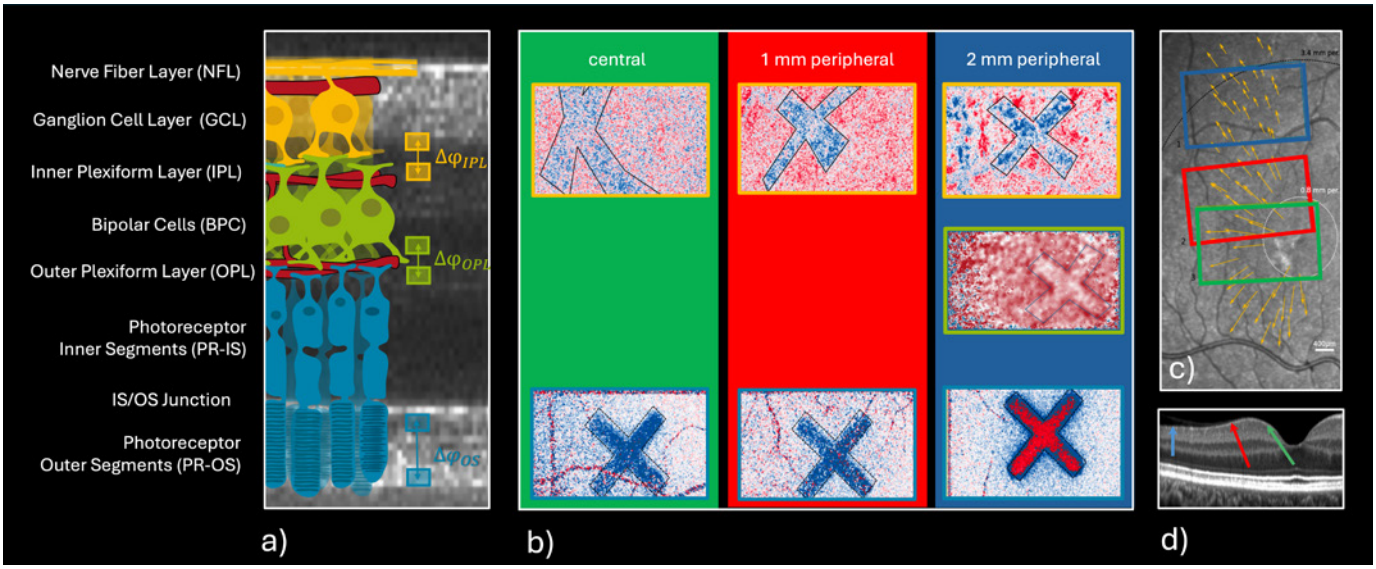


Figure 1: a) OCT B-scan with schematic retinal structure. Coloured squares mark regions used to compute phase differences Δφ in three layers. b) Layers responses to optical stimulation: en-face maps of colour-coded Δφ changes after a cross-shaped stimulus, measured at three retinal locations indicated by matching rectangles in the confocal image with the fovea circled (c). Near the fovea, the stimulated ganglion-cell area is larger and shifted relative to photoreceptors, while alignment is good in the periphery. Yellow arrows mark the shift between PR-OS and IPL stimulus edges, consistent with the absence of bipolar and ganglion cells in the fovea and their displacement peripherally. d) This is also indicated by coloured arrows in a B-scan across the fovea.

Introduction

The human eye is our most important sensory organ. It is based on a delicate morphological structure (Fig. 1 a) combining light sensitive photoreceptor cells with the neuronal tissue that preprocesses the visual information. As these structures are visible through the transparent structure of the anterior segment and the vitreous, the eye stands out as a window to the neuronal system for the diagnosis of ophthalmic and systemic diseases [1].

Optical coherence tomography (OCT) has transformed the way clinicians evaluate the structural integrity of the retina by generating cross-sectional images, which quantitatively visualise morphological changes. But OCT can provide more. Using the phase of the scattered light, the retinal function can be measured.

Optical phase for imaging retinal function

Traditionally, neuronal function is measured through voltage changes by electroretinography (ERG) which, however, is cumbersome, time-consuming, and limited in spatial resolution. Using the high sensitivity of the optical phase to changes in optical path length and calculating the phase difference between certain tissue layers,

retinal activity can be visualised by associated subtle morphological changes [2]. This opens the way for OCT to be used for optoretinography (ORG), the optical analogue of electroretinography (ERG).

So far, two mechanisms have been identified that convert optical stimulation into morphological changes: Changes in the electrical field across the membranes and osmotic changes in the photoreceptor cells associated with phototransduction. It seems reasonable to assume that osmosis is also responsible for the observed changes in synaptic connections [3].

Initial studies focused on functional responses of photoreceptors [2]. Later, also the functional responses of three different layers within the inner plexiform layer were simultaneously imaged (Fig. 1 b), linking the initial response of light-sensitive cells of the retina with the function of ganglion cells that transmit visual information to the visual cortex [3]. As ganglion cells are shifted out of the area of the fovea and, at the same time, have the highest density there, the shape of the ganglion cell response drastically changes, while the response of the photoreceptors always corresponds, as expected in healthy subjects, to the cross-like stimulation pattern.

Clinical translation

Since FF-SS-OCT is currently available only as a laboratory setup with quite expensive components, larger scale clinical evaluation for diagnostic use is difficult. Hence, implementing ORG on a scanning OCT device would have significant value for clinical translation. However, the correction of ocular motion is much more challenging than in FF-SS-OCT, since scanning is too slow to correct motion perpendicular to the fast-scanning axis. However, we recently could demonstrate high-quality phase-based ORG with a slightly modified clinically used device using an eye-tracker to actively correct out-of-plane motion between B-scans [6].

A first prospective clinical study is currently being initiated in Lübeck.

ORG could help close a diagnostic gap not fully addressed by OCT, ERG, or microperimetry. ERG objectively measures overall retinal function, while microperimetry provides spatially resolved but subjective testing. ORG combines both, offering objective, high-resolution, spatially precise assessment of retinal function.

This strategy may enable new diagnostics when retinal structure and function diverge – for example, in patients with near-normal anatomy despite major visual impairment, or when an objective measure of functional recovery after treatment is needed. It could also be key for early detection of systemic disease through the eyes optical window.

OCT has transformed retinal structural assessment; ORG could similarly transform how we characterise retinal and neuronal function.

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Prof. Dr. rer. nat. Gereon Hüttmann is deputy director of the Institute of Biomedical Optics, University of Lübeck, Germany. He is affiliated to the Medical Laser Center Lübeck GmbH and a member of the German Center for Lung Research and the Cluster of Excellence Precision Medicine in Chronic Inflammation (PMI). His research focuses on optical coherence tomography (OCT) and intravital microscopy.



Prof. Dr. Yoko Miura holds an endowed professorship of Ophthalmic Biophotonics at the Department of Ophthalmology, University of Luebeck, Germany. She is also affiliated to the Institute of Biomedical Optics and the Medical Laser Center Lübeck GmbH. Her research interest is cellular mechanisms in different optical procedures for diagnosis and treatment of the retina. Obtained results provide insights into the development of new methods for early diagnosis and early treatment of retinal disorders.

Improving Fat Quantification at 7 T MRI Using a Novel Acquisition Strategy

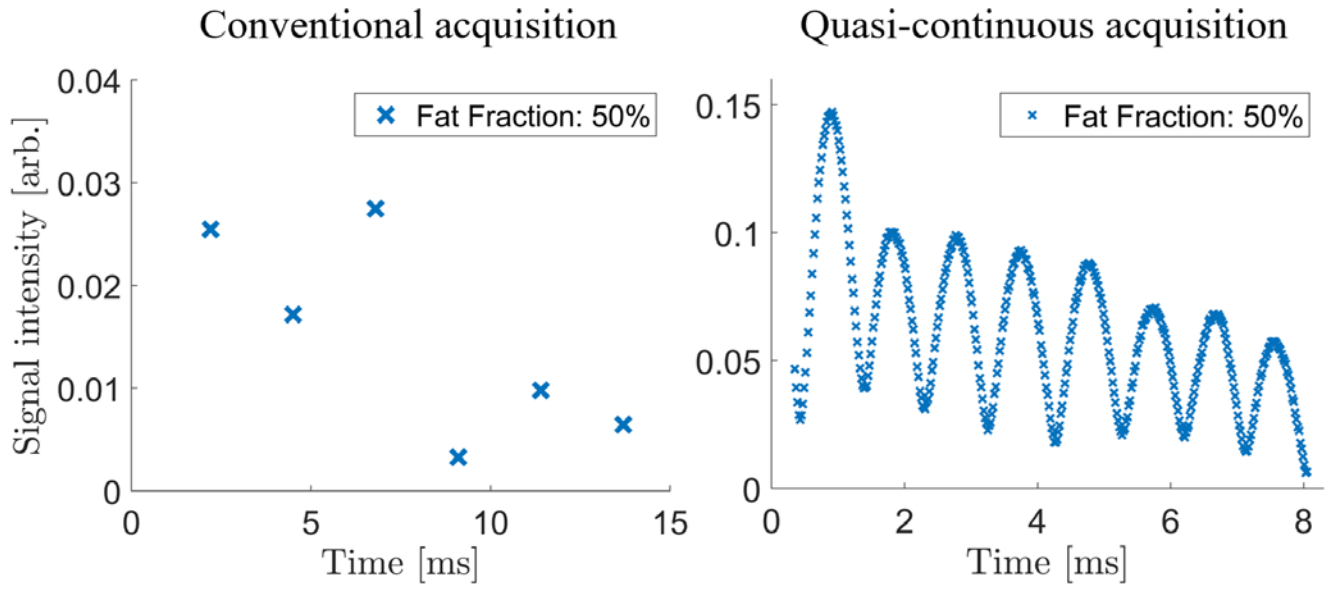


Figure 1. Signal evolution over time comparing conventional six-point Dixon and quasi-continuous acquisitions. The increased temporal sampling density enables detailed characterization of the oscillation. Adapted from [5], licensed under CC BY 4.0.

Quantitative assessment of fat is becoming increasingly important in MRI, as changes in tissue fat content are associated with several diseases, including muscular disorders [1] or liver disease [2]. Proton density fat fraction (PDFF) mapping provides a non-invasive method to measure fat content and has become an important biomarker for assessing tissue composition. However, PDFF measurements require accurate separation of fat and water signals. This becomes particularly challenging at ultra-high field systems such as 7 T, where magnetic field effects and rapid signal changes complicate reliable quantification [3].

The difference in resonance frequency between fat and water increases proportionally with the main magnetic field (B_0). At 7 T, this leads to a much faster phase evolution between the two signals compared with lower field strengths. Therefore, very closely spaced sampling times are required to accurately capture and model the signal behaviour. Conventional approaches, based on the Dixon method [4], usually acquire only a small number of discrete echo times. While this sampling is sufficient at lower field strengths, the fat quantification can become challenging at 7 T, particularly in regions with strong B_0 variations.

Here, we report on a work [5] in which we developed a new 3D radial acquisition approach that provides densely sampled echo times within a single measurement. Instead of acquiring only a few predefined echoes, our method generates a quasi-continuous distribution of echo times by com-

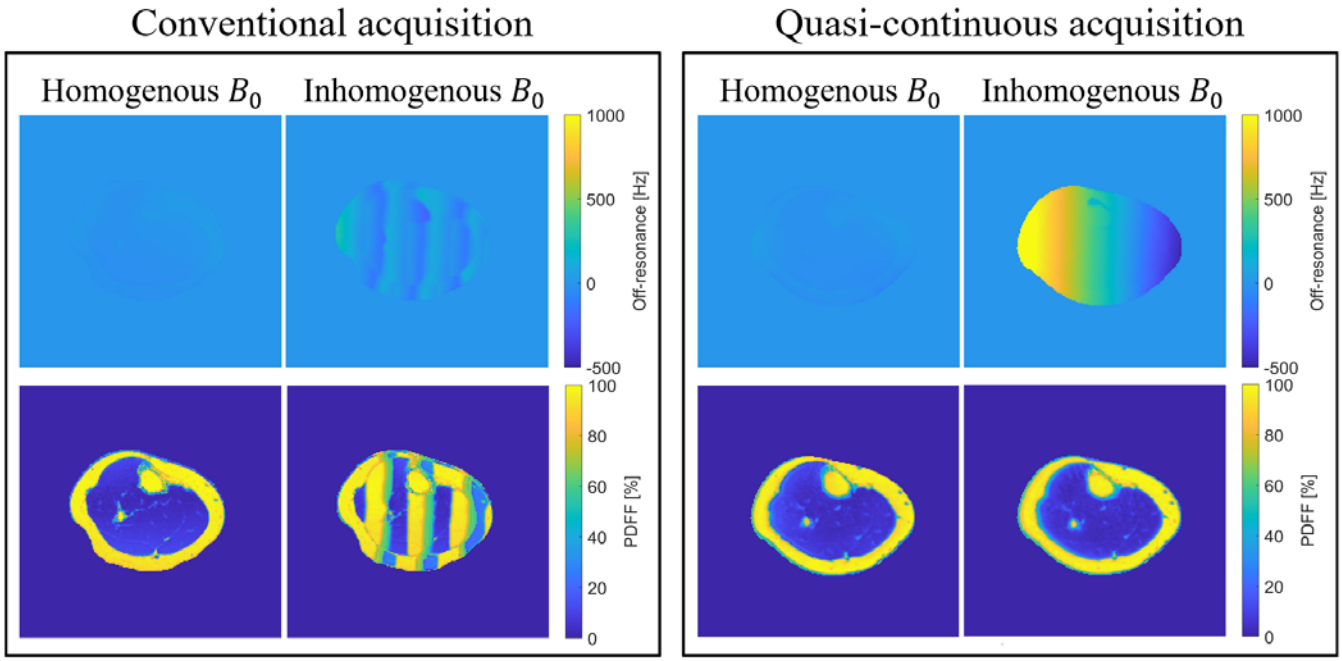


Figure 2. Comparison of conventional Dixon and quasi-continuous acquisitions under homogeneous and inhomogeneous B_0 conditions in the calf. Top: B_0 field maps; bottom: PDFF maps. Adapted from [5], licensed under CC BY 4.0.

bining multiple readouts that have small temporal offsets. This allows capturing the rapid signal evolution of fat and water at 7 T in greater detail. The used radial trajectory enables flexible reconstruction using a sliding window approach and provides improved robustness against motion.

Figure 1 shows the increased sampling rate of the newly developed acquisition method in comparison to the conventional approach for a phantom with 50% fat fraction.

First, we evaluated the method using a phantom containing different fat fractions. The phantom experiments demonstrated accurate fat quantification with a mean absolute error of 1.5%, confirming the ability of the approach to distinguish and quantify different fat concentrations.

Following the phantom validation, the method was evaluated in vivo in healthy volunteers in the calf. Under homogeneous B_0 conditions, both the conventional Dixon and the proposed quasi-continuous acquisition provided accurate field map estimation and consistent PDFF maps (see Figure 2). To evaluate robustness against field inhomogeneity, a linear B_0 gradient was intentionally applied at the scanner to mimic the large off-resonance variations encountered in anatomically challenging regions at 7 T. Under these conditions, the conventional acquisition failed to correctly estimate the field map, resulting in multiple fat/water swap artifacts and substantial PDFF errors across the image. In contrast, the proposed quasi-continuous acquisition accurately modelled the imposed off-resonance distribution, yielding PDFF maps without visible fat/water swaps and closely resembling the homogeneous reference. These findings demonstrate the improved robustness of the proposed acquisition to pronounced B_0 inhomogeneity.

This work demonstrates how advanced acquisition strategies can overcome some of the challenges associated with ultra-high field MRI. The proposed approach could support future applications where accurate and repeatable fat quantification is required, including metabolic, musculoskeletal, and abdominal imaging. In particular, improved robustness at 7 T may be

beneficial for applications such as liver fat assessment and breast imaging, where reliable fat quantification and separation remain challenging due to field inhomogeneities, motion, and complex tissue composition. Further studies will be needed to evaluate the method in different anatomical regions and clinical applications.

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Matthias Rohe is a medical physicist and PhD researcher at University Hospital Erlangen, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany. He received his Master's degree in Physics from FAU. His research focuses on ultra-high-field MRI, particularly novel acquisition and reconstruction methods for fat/water separation and quantitative imaging.

Advancing Precision: ESMPE School for Stereotactic Radiotherapy Heads to Cluj-Napoca

EFOMP is delighted to invite clinical Medical Physicists and researchers to the upcoming edition of the European School for Medical Physics Experts (ESMPE), focusing on **Stereotactic Radiotherapy (SRT)**. Taking place from **29th to 31st October 2026**, this two-and-a-half-day event will be held in a hybrid format. All expert lecturers will present live from the historic city of Cluj-Napoca, Romania, while attendees may choose to join on-site or participate remotely via live streaming.

Highlighting the Scientific Frontier: From Basics to Emerging Hot Topics

Led by School Chair **Joao Seco** and Scientific Chairs **Oliver Blanck** and **Lucy Winch**, the scientific programme provides a comprehensive and in-depth exploration of both cranial stereotactic radiosurgery (**SRS**) and extracranial stereotactic body radiotherapy (**SBRT**). Developed for practising Clinical Medical Physicists aiming to deepen their knowledge and skills, the course combines fundamental principles and core clinical protocols with cutting-edge technological advances. Key highlights of the scientific content include:

- **Foundations & Requirements**: Crucial insights into small field dosimetry, radiobiology rationales, and the formal protocols required to safely launch an SRT program.
- **Clinical Workflows**: Comprehensive lectures tracking patient preparation, multi-modal imaging registration, contouring standards (including ICRU Report 91), and advanced treatment planning strategies.
- **Advanced Motion Management & QA**: Deep dives into surface-guided radiotherapy (SGRT), online plan adaptation, and detector- and calculation-based patient-specific quality assurance.
- **Cutting-Edge "Hot Topics"**: Sessions dedicated to the frontier of radiotherapy, exploring **FLASH** proton therapy, **STAR** (Stereotactic Arrhythmia Radioablation / Radiotherapy), and single-isocentre **Multi-Mets Radiosurgery**.
- **Professional Leadership**: Highlighting the essential role of the Medical Physicist in clinical trials, national guidance, and multi-platform benchmark audits.

The course is fully accredited by **EBAMP** (European Board of Accreditation for Medical Physics). For those seeking an additional level of professional certification, a voluntary final examination will be held at the end of the school to secure extra credits.

Experience Cluj-Napoca: Heart of Transylvania

Located in the heart of Transylvania, **Cluj-Napoca** is one of Central and Eastern Europe's most dynamic cities, where Romanian, Hungarian, and German traditions have blended for centuries to create a unique cultural identity. Rich in history yet forward-looking, Cluj combines elegant Austro-Hungarian architecture, a thriving cultural scene, exceptional gastronomy, and one of Romania's highest standards of living. With excellent international connections and a safe, welcoming atmosphere, the city provides the perfect setting for

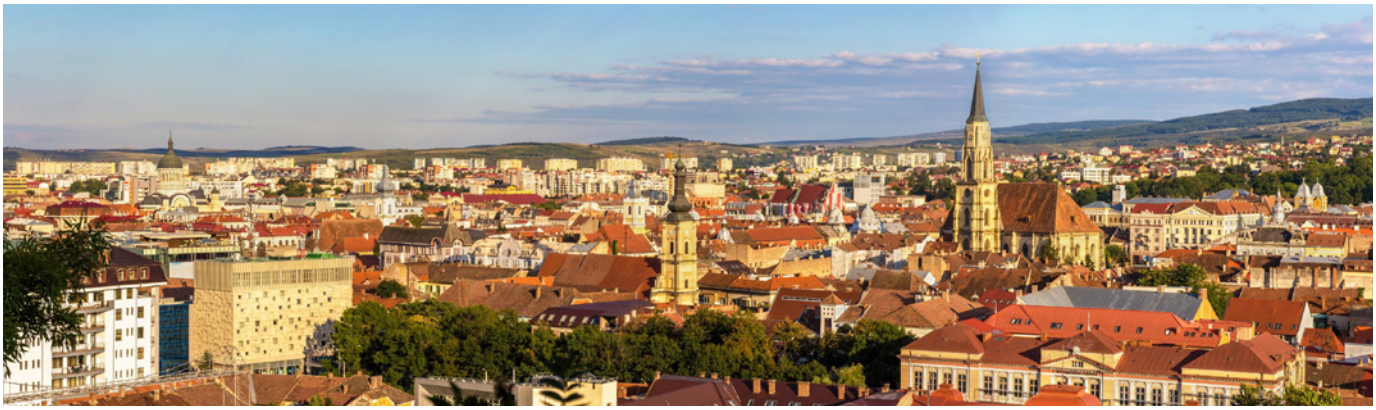


Figure 1. Cluj-Napoca city panorama

both scientific exchange and memorable travel.

As one of the region's leading academic and medical centres, Cluj is home to internationally recognised universities, innovative research institutes, and one of Romania's largest comprehensive cancer centres. A regional hub for advanced radiotherapy, medical physics, and oncology, the city provides the ideal setting for an **SBRT/SRS Course**. Participants will benefit from high-level scientific education, hands-on training, and valuable opportunities to exchange knowledge with leading experts and colleagues in an environment that fosters innovation, collaboration, and clinical excellence.

Autumn is perhaps the most inspiring time to experience Cluj. Each autumn, as more than 100,000 students return for the new academic year, the city comes alive with renewed energy. Cafés and terraces fill with conversation, cultural venues unveil new seasons, parks glow in vibrant autumn colours, and the streets buzz with creativity, innovation, and an international spirit. This unique blend of academic excellence, youthful vitality, and warm Transylvanian hospitality makes September and October the perfect season to discover the authentic character of Cluj.

Beyond the scientific programme, Cluj offers an unforgettable cultural experience. Wander through the charming Old Town centred around **Union Square (Piața Unirii)**, admire the magnificent Gothic **St. Michael's Church** and the iconic statue of **King Matthias Corvinus**, and explore elegant Austro-Hungarian architecture along vibrant pedestrian streets. The city's multicultural heritage is reflected in its museums, festivals, music, traditions, and cuisine, while its renowned specialty cafés, award-winning restaurants, and wine bars perfectly combine authentic Transylvanian flavours with contemporary international gastronomy.

Nature and history are always within easy reach. Just a short walk from the historic centre, Central Park (Parcul Central) offers a peaceful green oasis, while only 30 minutes away lies the spectacular Turda Salt Mine (Salina Turda), widely regarded as one of the world's most remarkable underground attractions. Within an hour of Cluj, visitors can discover the dramatic Turda Gorge (Cheile Turzii), the elegant Bánffy Castle at Bonțida, picturesque Transylvanian villages, renowned local wineries, and the breathtaking landscapes of the Apuseni Mountains.

Whether attending world-class scientific sessions, enjoying the city's vibrant atmosphere after a day of learning, or exploring the natural and cultural treasures of Transylvania, participants will quickly discover why Cluj-Napoca has become one of Central and Eastern Europe's most appealing destinations for scientific exchange, professional development, and unforgettable travel.

Registration and Practical Information

- **Venue:** The Oncology Institute "Prof. Dr. Ion Chiricuţă", Cluj-Napoca, Romania.
- **On-site Capacity:** Limited to 120 participants (Online attendance has no limit).
- **Fees:** Standard MPE registration is €400. EFOMP is also offering a subsidized reduced fee of €200 on a first-come, first-served basis for the first 40 participants from select European countries, as well as for 30 young professionals under 35. In addition, a number of reduced registration fees are available for participants from low- and middle-income countries outside Europe.
- **Contact**: secretary@efomp.org/ president@efomp.org

Important Note: Electronic registration must be completed via the official EFOMP website. Registration officially closes on **22nd October 2026**.

Don't miss this incredible opportunity to sharpen your stereotactic skills, exchange clinical wisdom with an international faculty, and explore the gothic charm of autumn in Transylvania!

Our Scientific Chairs:



Oliver Blanck studied computer science with a focus on treatment planning systems and received a PhD for his preclinical work on Stereotactic Arrhythmia Radioablation (STAR) from the University of Lübeck (Germany) in 2013. In 2024, Dr. Blanck finished his habilitation in Medical Physics on new developments in Stereotactic Radiotherapy at the University of Kiel (Germany). Currently, he is the chief officer of operations, medical physics, research and development at the university driven Saphir Radiosurgery centres in Kiel and Frankfurt (Germany) and the coordinator of multiple clinical trials on Stereotactic Radiotherapy. Furthermore, he is a board member of the ESMPE and the working groups for Stereotactic Radiotherapy of the German Radiation Oncology and Medical Physics societies and the lead coordinator of the EU-Horizon-2020 STOPSTORM Consortium.



Lucy Winch is Head of Dosimetry Development and Gamma Knife Physics Lead at the Bristol Oncology Centre, one of the UK's four all-tier intracranial NHS SRS centres. She has worked in radiotherapy physics since 2000, with 26 years' experience across the field, including 10 years in linac-based SRS and 13 years with Gamma Knife Perfexion, Icon and Esprit systems. Lucy and the Bristol Gamma Knife team have delivered numerous national and international presentations, and she currently serves as editor for the Gamma Knife section of the upcoming new edition of the Institute of Physics in Medicine's Acceptance Testing and Commissioning of Linear Accelerators.



Diana Pop is a Medical Physics Expert at the Institute of Oncology "Prof. Dr. Ion Chiricuță" (IOCN) in Cluj-Napoca, Romania. As the representative of the host institution, she contributes to the organisation of the course and to promoting collaboration, innovation, and excellence in radiation oncology. She has worked in radiotherapy physics since 2011, with particular expertise in image-guided adaptive interstitial brachytherapy. Diana is President of the Romanian Society of Medical Physics (SRFM), an ESTRO faculty member (since 2025), and is actively involved in education, research, radiation protection, and supporting the implementation and development of advanced brachytherapy programmes across Romania.

Galileo Galilei Award 2025: An Interview with Mario Djukelic

The Galileo Galilei Award 2025, presented by Physica Medica, has been awarded to the paper "Cone beam CT (CBCT) in radiotherapy: Assessment of doses using a pragmatic setup in an international setting". The study brings together an international team and presents a practical approach to CBCT dosimetry and dose optimisation in radiotherapy.

We spoke with Mario Djukelic, first author of the award-winning paper, about the project, the international collaboration behind it and the role of mentorship in his research journey.

What does receiving the Galileo Galilei Award 2025 mean to you and to your co-authors?

This still feels so surreal. This recognition means a lot to us, as everyone put a lot of effort and passion into this project - from time-consuming measurements outside office hours to countless online meetings across multiple time zones and many manuscript reviews. We are honoured to have received this prestigious award.

Your paper brings together collaborators from many institutions and countries. How did this international collaboration begin and what were the main advantages of working with such a diverse team?

It all started with the amazing mentorship programme of ICRP Task Group 116, which initiated a small side project on CBCT dosimetry with a handful of mentees. The project quickly grew, with 19 mentees and contributions from more than 20 countries.

The main advantage was working with professionals from all continents and learning from their experience and practices in CBCT dosimetry.

For readers who may not be familiar with the study, could you briefly explain the main objective of your work and why CBCT dosimetry is such an important topic in radiotherapy?

KV CBCT is an important tool for position verification in radiotherapy, but imaging dose optimisation has traditionally received less attention. CBCT can deliver relatively high doses and is often performed daily, meaning that a typical patient could undergo more than 30 CBCT scans during their treatment course.

Our goal was to raise awareness and provide accessible tools for imaging dose optimisation, helping to reduce the imaging-related radiation burden to patients.

What do you consider to be the most significant finding or practical impact of this study for everyday clinical practice?

We were surprised that gold-standard CBCT dosimetry equipment, such as pencil ionisation chambers and cylindrical CT phantoms, is not commonly available in radiotherapy centres worldwide.

We therefore developed practical alternatives using more readily available equipment, such as Farmer-type ionisation chambers and water-equivalent slab phantoms. Conversion factors allow these measurements to be related to the gold-standard approach, enabling more centres to perform CBCT measurements and engage in meaningful dose optimisation.

Were there any major challenges during the project that the team had to overcome?

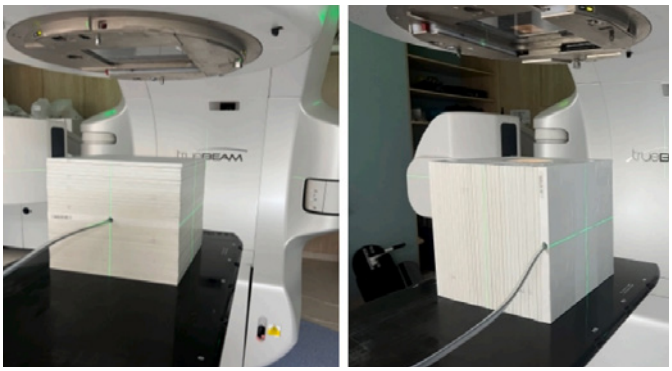


Figure 1. Slab phantom setup for CBCT dosimetry measurements using a Farmer-type ionisation chamber. Left: central position; right: peripheral position.

Gaining access to clinical linacs after hours and performing multiple measurements required a lot of time and effort. Organising meetings with 29 co-authors across many time zones was another challenge. Finding a time that suited everyone was nearly impossible and required some of us to dial in at 6 am or 9 pm!

What advice would you give to early-career medical physicists who would like to become involved in international collaborative research?

My supervisor forwarded me an ICRP newsletter about mentorship opportunities and encouraged me to apply. I was hesitant because it felt so out of reach, but I gave it a go and was accepted - which opened so many opportunities.

I would encourage early-career professionals to engage with their national networks and attend their events. Also, sign up for newsletters from organisations such as ICRP, EFOMP, IAEA and AAPM, and look out for mentorship opportunities. It is worth getting out of your comfort zone and giving it a go.

The Galileo Galilei Award will be presented during ECMP 2026 in Valencia. Are you looking forward to the event? What message would you like to share with colleagues attending the congress?

I am certainly looking forward to ECMP 2026 in Valencia, to meet and learn from world-class medical physicists. I am also very excited to receive the Galileo Galilei Award in person. I have already mentioned above – this feels still surreal!

I would encourage my colleagues to join mentorship programmes, whether as a mentee or a mentor. These opportunities can lead to international collaborations, professional development and the chance to meet amazing people in your field.

Moreover, I would love to hear about your work. Come and say hi!

Finally, what are the next steps for this line of research?

The pragmatic CBCT dosimetry tools have been established, and we would like to encourage the co-authors to share the news locally. Some mentors and mentees have already been successful in performing a nationwide CBCT dose audit in their home countries (UK, Poland and Colombia).

In our study we noticed that there are more Farmer chamber and slab phantom models available that require conversion factors.

Another goal in the future is to make awareness to the linac vendors and to suggest incorporating CBCT dose metrics on the linac consoles (similarly to CT scanners) that can help radiotherapy centres with imaging protocol optimisation.

Read the full article:





Mario Djukelic is an ACPSEM certified diagnostic imaging medical physicist working at GenesisCare Australia providing national physics support for the Theranostics service and imaging related projects. He is also working towards his ACPSEM registration in radiation oncology medical physics. His research interests are exploring the intersections of imaging and therapy.

Rita Albergueiro is a Medical Physics resident specializing in Nuclear Medicine at the Local Health Unit of São João. She holds a master's in medical physics and collaborates with the IPO Porto Research Centre in projects on Medical Physics, Radiobiology, and Radiation Protection. She joined EFOMP's C&P Committee in 2025.

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Meet the New Chair: Professional Matters Committee

June 2026 marked a new chapter for the EFOMP Professional Matters Committee, as Jaime Martínez Ortega stepped into the role of Chair. With new leadership come new ideas, perspectives, and ambitions for the term ahead. In this interview, we get to know Jaime, learn what motivated him to take on this role, and hear about his vision and plans for the Professional Matters Committee.



Jaime Martínez Ortega (PhD) is a Medical Physics Expert with more than 20 years of professional experience. He studied Physics at Universidad Complutense of Madrid, received his doctorate from the University of Alcalá (Madrid, Spain) with a thesis on EPID in-vivo dosimetry and was trained as a MPE at the Hospital Universitario Central de Asturias (Oviedo, Spain). He is also involved in professional matters, as a board member of Spanish College of Physicists (COFIS) and consultant boards of the Spanish Ministry of Health.

Jaime, could you tell our readers a little about yourself, and your professional journey in medical physics?

I have been a Medical Physics Expert (MPE) since 2003 and I have been working mainly in Radiation Oncology and Radiation Protection. I began my career at MD Anderson International Spain and later joined the team at Hospital Quirón Madrid, which was in the process of establishing a new hospital in the Madrid region.

In 2009, I joined the Department of Radiophysics and Radiation Protection at Hospital Universitario Puerta de Hierro-Majadahonda, one of the main public hospitals in Madrid, where I have served as head of the department since 2017.

I currently also hold the position of Chair of the National Commission for the Specialty of Hospital Radiophysics (official name for MPEs in Spain) , an advisory board of the Spanish Ministry of Health. This is a highly important commission, as it is responsible for developing an updated training program for our specialty, which should be approved by the Ministry.

Regarding EFOMP, I have been a member of SEFM (Spanish Society for Medical Physics) since 2001 and I am therefore very familiar with EFOMP's evolution through the newsletters and through Spanish colleagues who have also been involved with EFOMP. I also was a member, representing SEFM, of the Working Group on "The role and competences of MPs and MPEs in the different stages of a medical device life cycle", which developed the EFOMP Policy Statement 17. There, I had the opportunity to learn about the regulations about medical devices in other countries.

What motivated you to apply for the position of Chair of the EFOMP Professional Matters Committee? What attracted you to this role?

I was encouraged by several close colleagues to apply for this position, as this Committee plays an important role in the standardization of Medical Physics across Europe, a topic that has always been of great interest to me.

As the European Union aims to guarantee the free movement of professionals between Member States, Medical Physics should not be an exception. Facilitating professional mobility benefits both patients and healthcare professionals alike. It is also highly valuable that we can continue learning from each other and share different approaches and best practices.

Furthermore, in my role as a Chair of the National Commission for Hospital Radiophysics, I have had the opportunity to learn from my predecessors about professional regulation, the importance of harmonizing training programs and the implications of Directive 2013/55/EU on the mutual recognition of professional qualifications.

The Professional Matters Committee plays an important role in supporting the medical physics profession across Europe. What are your priorities and vision for the committee during your two-year term?

The Professional Matters Committee has carried out important work during these years and I would like to contribute to its continuation. We have an important role providing guidance and support to National Member Organizations facing professional, educational and regulatory challenges.

During my two-year term, I want to focus on supporting EFOMP's efforts towards European recognition of Medical Physics Experts (MPEs) as healthcare professionals and the harmonization through the Common Training Framework (CTF). This framework aims to maintain high standards of education and training for MPEs, ensuring that patients are diagnosed and treated safely in every country. It also facilitates the free mobility of professionals and the mutual recognition of qualifications across Europe, in line with other healthcare professions.

Directive 2013/59/EURATOM places particular emphasis on the safe use of ionizing radiation, reinforcing the role of MPEs. Therefore, European authorities are aware of our important contribution to patient safety and quality assurance. I believe this provides an excellent opportunity to achieve greater harmonization through the standards set out in the European Commission Report RP-174, published in 2014.

We must also strengthen and expand the National Registration Scheme (NRS) network. NRSs provide an important framework for professional recognition and quality assurance. I would like to support both established and emerging schemes, while encouraging more countries to participate in the process.

EFOMP relies on the enthusiasm and commitment of medical physicist volunteers from across Europe. What would you say to colleagues who are considering joining the Professional Matters Committee?

I would strongly encourage my colleagues to join the Professional Matters Committee. This is one of the EFOMP committees with the most direct impact on the future of our profession. Being part of an EFOMP Committee is also an excellent opportunity to learn from colleagues with different professional backgrounds and healthcare systems, to exchange experiences, and to build a strong European network.

For me, one of the greatest strengths of EFOMP is that it brings together dedicated volunteers who share a common goal: advancing the pro-

fession and improving patient care. Every contribution matters, whether it comes from experienced professionals or colleagues who are joining European activities for the first time.

I would especially encourage younger medical physicists and those who have not previously been involved in EFOMP activities to participate. New ideas, different perspectives and fresh energy are essential for the future development of our profession.



Antonio Jreije is a Medical Physicist at Vilnius University Hospital Santaros Klinikos and Secretary of EFOMP's Communications & Publications Committee. He conducted the interview.

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My EFOMP Experience

Dear EMP News reader,

My journey with EFOMP began back in 2012. That year, Carmel Caruana (MT) visited Prague, and my schoolmate Martin Steiner and I met with him regarding the possibility of organizing the very first European School for Medical Physics Experts (ESMPE). We thought it was a wonderful opportunity to experience medical physics on a whole new level, so we eagerly agreed. The first ESMPE was held in 2013. It was dedicated to nuclear medicine, and I—still in my medical physics "teenage" years—even gave a lecture there! While it was a bit uncomfortable to watch the recordings from that event later on, nowadays I feel I can handle seeing myself presenting much more easily. Marco Brambilla (IT) was the scientific chair of this first edition, while Carmel Caruana chaired the school. The connection I made with Marco during that ESMPE experience eventually led to an offer to become his Assistant Secretary General. I accepted and started working for EFOMP in 2017 as the first Assistant Secretary General in the organization's history. After a year in that role, things moved pretty fast. I became Secretary General under President Marco Brambilla (2018–2020) and transitioned to Treasurer right after. I spent two terms (2021–2023 and 2024–2026) in that role, which adds up to nine years as an active EFOMP officer.

Over those years, I met five EFOMP presidents at different stages of their terms – John Damilakis, Marco Brambilla, Paddy Gilligan, Efi Koutsouveli, and Dimos Baltas. All of them were great, each having a unique style of governing our organization, but always with respect for their predecessors and with ambitious visions for the future. I can't even list all the other officers who held various EFOMP posts during that time; there were simply so many of them.

My time as Secretary General was quite stressful for me, especially during Officers' meetings and General Assemblies, where agendas needed to be drawn up and followed. I quickly found out that even with the best possible preparation, there would be a great deal of improvisation needed. Not being a native English speaker didn't help much, but in the end, I realized that since EFOMP members come from all parts of Europe, we all face the same issue – some with more success, some with less. I never encountered a situation where language skills became a real obstacle. Eventually, there's always paper and pen, and a picture is worth a thousand words, isn't it?

By contrast, the Treasurer's role turned out to be more relaxing. Well, maybe not from the very beginning, since I had to get an insight into accounting, and especially during 2021 and 2022 when EFOMP's move from the United Kingdom to the Netherlands had to be finished. It was a steep learning curve. In the following years, I mostly observed the Officers' meetings and General Assemblies, helping other officers by serving as a "historical memory" of the reasons behind past decisions. Of course, there was always the regular Treasurer's work: preparing budget reports and plans for the upcoming year, as well as handling various financial issues. I feel I had only moderate success with the planning; this is something I must admit. It was not that hard to predict the income, but it seemed impossible to plan the spending. Our officers would draft plans for projects they wanted funding for, but in the end, the money was often not spent as planned – or not spent at all. It's easy to blame someone, but we have to remember that all of our officers are, in fact, volunteers. Whether a specific project actually starts and finishes depends entirely on the time they are able to devote. I soon realized that the most precious resource in our organization is not money, but the time of these

volunteers. For quite a few years, the EFOMP board has been trying to establish a General Manager position—someone who won't be "in charge" of EFOMP, but will coordinate our efforts to make all processes smooth and more linked together. It's not an easy task to find such a person, since it requires not only managerial skills, but also at least some knowledge and orientation in the medical physics field.

Various EFOMP officers and committee members realized many years back that there is an extra effort needed to promote EFOMP, to keep the community together, and to attract more medical physicists across Europe. While all of this is important, bringing newcomers into EFOMP itself – and engaging new committee members who will eventually become officers – is absolutely critical. I lost count of how many times the EFOMP board spoke about this topic.

I joined the Communication and Publications committee in the years when David Lurie (UK) was its chair. Being a member of this committee allowed me to come up with ideas on how to engage the community, how to attract people to EFOMP, or at least help them identify with the organization. Some of you might remember that together with David and other committee members, we ran a photo competition for medical physicists. Thanks to a shared love for photography, we were happy to devote our time to organizing this activity. It dates back to 2020 and 2021, and you can still find the winning photos in EMPNews from that period.

Other committee and board members also took part in various activities. For instance, Anna Jelínek Michaelidisová (CZ) was in charge of the medical technology comics, which could be found in the EMPNews archives. The former chair of the Professional Matters committee, Ad Maas (NL), organized a Haiku contest for the EMPNews Winter edition 2020 (I participated and got a nice 3rd place!). But as you can see, all of those activities were driven by specific people rather than the positions themselves. Thus, when that particular person ran out of time or left EFOMP, the initiative, unfortunately, came to a halt.

As EFOMP grew stronger, our representatives' presence at sister associations' congresses became more and more important. Having a booth or stand there is one thing, but honestly, who from EANM, ESR, or ESTRO will remember EFOMP – when we are just a mere group of physicists in their eyes? We needed something to give to visitors, something that they could use or wear. This is where the lapel pins came from (fig. 1). Many ideas for EFOMP merchandise were discarded just after they popped up in someone's mind. It was never our goal to pollute the world with EFOMP-related objects. Recently, we started trading the pins for photos. The "Friends of EFOMP" pages from ECR and ESTRO (you can find them in the latest editions of EMPNews) resulted from this activity, and EANM2026 will be the next one.



Figure 1. A family of various EFOMP pins.

EFOMP officers never stop thinking about new possibilities to improve the organization and its communication. Even during dinner after a day-long meeting, we simply continue talking about EFOMP. Of course, we also share personal experiences and laugh about our normal lives. In 2022 in Dijon (FR), we were surprised by the rain on the way to the restaurant. Later, we concluded that EFOMP is, in fact, an umbrella for all medical physicists in Europe, and it doesn't matter that, as a federation, it doesn't have individuals as regular members. "Speaking of umbrellas", some-



Figure 2. The EFOMP medal. The front side (left) depicts open palms symbolizing an organization welcoming to everyone, a laurel wreath representing stability and triumph in the field of medical physics, and a heart within the hands highlighting the volunteering spirit of our association. The anatomical image of the heart is reminiscent of a radiological image (upper left), a nuclear medicine image (upper right), and a radiotherapy dose distribution. The reverse side shows "slices" of Europe.

one said, "I seriously think we need EFOMP umbrellas." This idea was jointly adopted, and some of you might remember that colourful umbrellas were available during ECMP2024 in München (DE). I'm still using the yellow one from time to time.

Usually once every two years, EFOMP awards a medal to an individual who has made an outstanding and internationally acknowledged contribution to the advancement of medical physics. In 2020, we ran out of the first batch of medals. Those were made in Italy from 155.5g of pure silver. Since I had some experience with lapel pins, umbrellas, and EFOMP certificates made from handmade paper, it was my task to find a manufacturer for a new set. Having no luck with companies able to produce pins, ordinary medals, pencils, or various marketing items, I asked the Czech Mint – a company producing Czech banknotes and coins. Despite the fact that we wanted only ten medals, they found the project interesting and agreed to work on it. I learned a few things about the process of creating high-grade medals (or currency). The result is not only a round piece of silver, but also a true work of art (fig. 2).

Have you heard about the Early Career Medical Physicists Special Interest Group (SIG_FREC)? This wonderful SIG is full of young people. They might not be interested in wearing old-fashioned pins. Nowadays, colorful stickers are more popular. You can see them everywhere, on every piece of electronic equipment young medical physicists are using. This meant that we needed some of those too, EFOMP's own, with a more modern style. Fortunately, our graphic designer George Kassalias, who is behind the visual identity of EFOMP, EMPNews, recent protocols, and many more, found this interesting, and together we brought the idea to life (fig. 3). Stickers will be available during ECMP2026 and other congresses with an EFOMP booth.



Figure 3. EFOMP style stickers.

The end of my last term as an EFOMP officer is approaching fast. On 31.12.2026, after exactly 3652 days, I'll leave my active role on the EFOMP board. Despite various difficulties, I have to admit that I enjoyed every single one of them. I've gained many friends, had the privilege to meet with great medical physicists from all parts of Europe, improved here and there, and learned new skills. My work for EFOMP never got boring. It often reminded me of Forrest Gump's quote: "My mama always said life was like a box of chocolates. You never know what you're gonna get." Each day was different, with varied tasks to handle. Isn't this what a dream job looks like? Always new tasks, not one day like the other. This is what I love about my medical physics job. It's a fresh box of chocolates to be opened every day and being surprised by what's inside!

An EFOMP experience is something I would recommend to anyone. You'll not regret it.

P.S. I cannot end this without mentioning two colleagues who are very dear to me, without whom my EFOMP experience would not be what it is—Marco Brambilla and Brendan McClean. My friends, I have thoroughly enjoyed every single moment in your company. Thank you.





Jaroslav Ptáček

University Hospital Olomouc

Jaroslav studied Medical Physics at the Czech Technical University in Prague, earning a master's degree in 2003 and a Ph.D. degree in 2014. He has been working at the Department of Medical Physics and Radiation Protection at University Hospital Olomouc since 2003, where he has been a clinical medical physicist in nuclear medicine since 2006 and became the head of the department in 2009. He was a member of the board of the Czech Association of Medical Physicists between 2006 and 2010, and its president from 2010 to 2018. His EFOMP history is described in the article above.

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Advancing End-to-End Respiratory Motion QA with the ThorX Motion Platform

As radiation therapy techniques become increasingly precise, ensuring treatment accuracy in the presence of respiratory motion remains a significant challenge. Technologies such as respiratory gating, target tracking, and adaptive workflows have expanded the ability to treat moving targets, but they also introduce additional complexity into the treatment process. Verifying each individual component is important, but clinics also need to understand how these technologies work together when motion is present.

The ThorX Motion Platform was developed to address this need by enabling end-to-end quality assurance of respiratory motion management workflows. By introducing realistic, repeatable respiratory motion into the testing environment, the platform allows clinicians and physicists to evaluate the complete treatment process—from imaging and treatment planning through motion management and dose delivery—under dynamic conditions that more closely represent patient treatments.

This workflow-based approach provides insights that may not be apparent when individual systems are tested independently. A treatment plan may perform as expected under static conditions while the interaction between respiratory motion, target tracking, gating and treatment delivery may introduce additional uncertainties. By reproducing controlled motion throughout the QA process, clinics can evaluate these interactions and identify potential issues before patients are treated.

The ThorX Motion Platform can support a range of clinical applications, including commissioning respiratory gating workflows, validating target tracking systems, evaluating treatment planning strategies, and performing routine motion-related QA. Programmable motion allows users to test different respiratory conditions and assess how the complete workflow responds to changes in breathing patterns, rather than evaluating each component in isolation.

The platform provides programmable respiratory motion that can reproduce a variety of breathing patterns, including patient-specific respiratory traces. Users can adjust motion characteristics such as waveform, amplitude, breath-

ing rate, phase shift, target rotation, and chest wall vertical motion to create clinically relevant test scenarios. The ThorX Motion Insert incorporates an embedded target within lung-equivalent material, allowing dose measurements to be performed concurrently with both a detector and film. This combination provides the flexibility to investigate specific aspects of motion management while maintaining the ability to perform end-to-end treatment verification.

Designed for use with the LUCY ThorX Phantom, the platform combines realistic respiratory motion with a pseudo-anthropomorphic phantom lung, kidney, ribs, and spine structures. Together, they provide a comprehensive environment for end-to-end SBRT and respiratory motion QA. The LUCY ThorX Phantom can also be used for routine imaging and machine QA (per AAPM TG-66 and TG-142), helping clinics consolidate multiple QA applications into a single phantom and reduce the number of phantoms required in a busy department.

As radiation oncology continues to advance toward greater precision and personalization, QA must evolve beyond verifying individual components to evaluating how the complete treatment workflow performs under clinically relevant conditions. The ThorX Motion Platform provides clinics with a practical way to perform this comprehensive evaluation, helping identify uncertainties, strengthen motion management programs, and increase confidence that the intended treatment is accurately delivered—even when respiratory motion is present.

About Standard Imaging

Standard Imaging is a global leader in radiation therapy quality assurance, providing advanced technologies that help ensure treatment accuracy, operational efficiency, and patient safety. Trusted by clinics around the world, the company's comprehensive portfolio of QA solutions enables teams to simplify complex workflows, strengthen clinical confidence, and deliver high-quality patient care. Driven by innovation and dedication to customer success, Standard Imaging continues to shape the future of QA in radiation oncology. For more information, contact the Standard Imaging team.



Umar Baharom is the Product Manager and OEM Strategic Accounts at Standard Imaging and has been with the company since 2022. He has background in engineering and has 15 years of experience in phantom design and manufacturing.

Advancing Patient-Specific SRS QA with Next-Generation 3D Printing

High-precision stereotactic radiosurgery (SRS) requires quality assurance tools that accurately reflect the anatomy and radiological characteristics of the individual patient. RTsafe's PRIME phantom is designed to introduce this level of realism into the verification workflow by reproducing patient anatomy in a physical, imageable object suitable for treatment planning and dosimetric assessment. The established RTsafe manufacturing workflow was originally characterised using the ZPrinter 460 platform. In peer-reviewed work, the resulting cranial phantom demonstrated strong agreement between treatment planning system (TPS) calculations and film measurements, supporting its use as a reliable transfer standard for patient-specific SRS quality assurance [1].

However, RTsafe has recently updated its manufacturing platform to the Stratasys J5 Digital Anatomy printer. An additional evaluation was therefore performed to compare the new platform with the established ZPrinter 460 workflow. Two geometrically identical anthropomorphic head phantoms were manufactured, one using the ZPrinter 460 and the other using the Stratasys J5 Digital Anatomy platform. Each phantom underwent a separate CT acquisition. A radiotherapy treatment plan containing three planning target volumes (PTVs) located close to the brainstem was generated on each CT dataset (Figure 1). The calculated dose distributions were compared using isodose overlays and dose–volume histograms (DVHs).

The clinically relevant isodose lines showed close spatial co-localisation, with no systematic expansion, contraction or displacement of the dose regions. DVH comparisons for the evaluated PTVs also demonstrated close agreement, with comparable target-dose coverage and high-dose fall-off. Overall, the results did not indicate a systematic change in phantom geometry, radiological representation, attenuation behaviour or image registration attributable to the transition between manufacturing platforms (Figure 2).

An additional advantage of the J5 platform is its ability to reproduce differentiated radiological properties within the same printed anatomy. For CT imaging performed at 120 kVp, the materials designated to represent bone and skin produced CT numbers of approximately 750 HU and 250 HU, respectively. These results demonstrate the ability to generate distinct and reproducible CT contrast levels within a single anthropomorphic phantom. This capability may further improve the anatomical and radiological realism of patient-specific phantoms and support more representative end-to-end testing.

By combining continuity in dose-distribution performance with advanced multi-material printing, the J5 Digital Anatomy platform strengthens RTsafe's ability to deliver realistic and clinically relevant patient-specific SRS quality assurance solutions. The transition supports greater manufacturing flexibility and production resilience, while differentiated CT contrast adds further value to anatomically representative end-to-end verification. This evolution reinforces RTsafe's commitment to advancing personalised QA through reliable, evidence-based innovation.

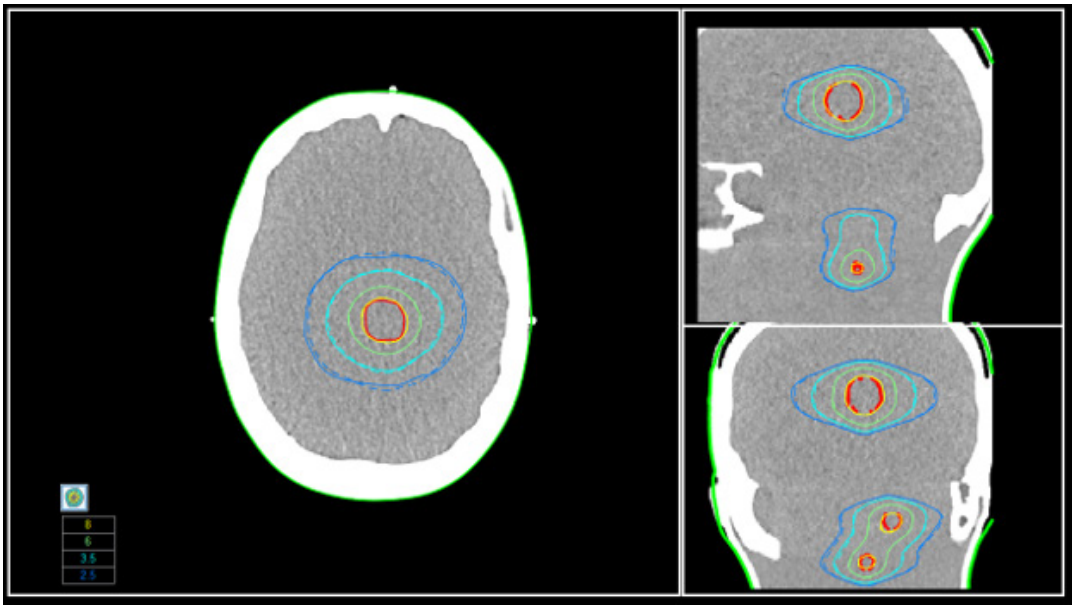


Figure 1. Multi-planar CT views with the two distributions for 8,6,3.5 and 2.5 Gy isolines. Solid lines represent the dose distributions for the Zprinter 460 phantom, while dashed lines represent the dose distributions for the J5 Digital Anatomy phantom.

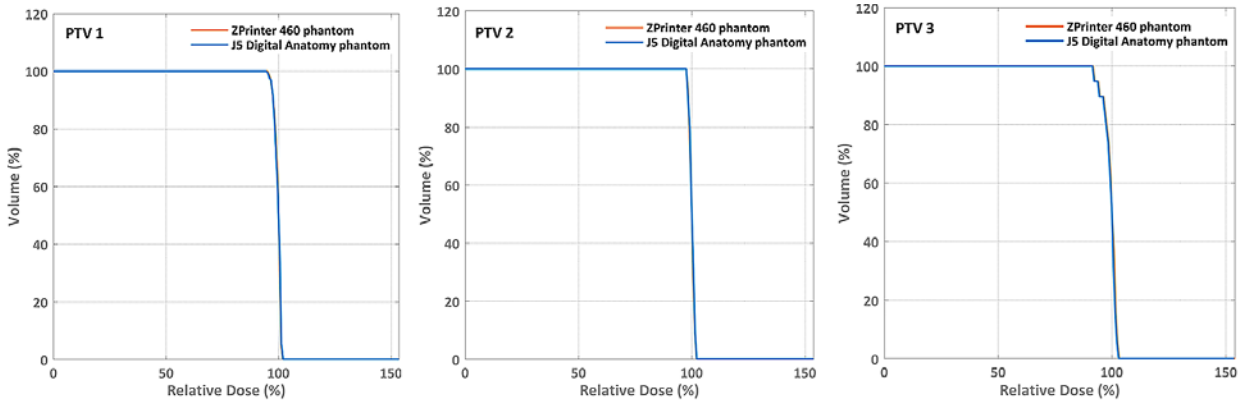


Figure 2. Dose-volume comparison for the evaluated planning target volumes.

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Vasiliki Margaroni Medical Physicist

Vasiliki is responsible for the data analysis and the scientific support and guidance of the end user. She has a Diploma in Physics, a Master of Science and a Ph.D. in Medical Physics from the National and Kapodistrian University of Athens. Her research interests focus on radiation therapy with emphasis on quality assurance, experimental and computational dosimetry in contemporary radiotherapy and radiosurgery systems.

Approaching Re-treatment With Clarity

Tackling Complexity with Better Tools

Re-treatment cases are a sign of progress for modern oncology – more patients are overcoming cancer and surviving longer after treatment. With this improvement in patient outcomes, the number of patients who require second (or even third, fourth, and beyond) rounds of treatment is increasing. Survivors are at risk for recurrence of the original disease and have a higher risk of new primary cancers [1]. A 2023 study across 8 clinics found that approximately 24% of patients were undergoing re-treatment or palliative reirradiation, underscoring the growing importance of these complex clinical workflows [2].

Re-treatment cases come with all the challenges of the initial course of treatment, and more. As these cases grow, there is a clear need for evidence-based, repeatable courses of action for different primary sites, as well as better planning that accounts for specific recovery rates for organs at risk [3]. Complexities such as anatomical changes, different image datasets, variable treatment intervals, and uncertainties associated with deformable registration add further complications to the mix. Clinicians have a responsibility to safely and effectively manage the complexity associated with re-treatment cases.

Re-treatment Presents Unique Challenges

Prior treatment introduces increased uncertainty around treatment planning and delivery. Patient anatomy changes over time, which makes following accumulated doses more challenging. Tumour regression, weight loss, surgery, and normal anatomical changes all impact the relationship between targets and surrounding tissues.

In cases of re-treatment, clinicians must account for the length of time between treatments and how that impacts the recovery of nearby OARs. Even when treating different primary sites, there can be overlap of OARs and affected tissues. The challenge is further compounded when patients have received multiple treatment courses with different fractionation schedules, making cumulative dose assessment more complex than simply summing physical dose distributions. The need to quantitatively plan around cumulative doses to maximize tumour control with the tolerance of previously irradiated tissues remains one of the most significant challenges in modern re-treatment practice [4].

Software That Meets the Current Moment

Advances in imaging, deformable registration, and biological dose evaluation help address many of the challenges associated with re-treatment. Radformation has expanded the capabilities of AutoContour and ClearCheck to improve workflows around anatomical alignment, cumulative dose assessment, and plan evaluation.

The recent merger with Limbus Contour vastly expands the number of models available for automatic, reliable AI-driven contouring for CT, MR, and CBCT workflows. Beyond automated contour generation, AutoContour includes rigid and deformable image registration along with integrated visual quality assurance tools. This empowers clinicians to follow anatomical changes between treatment courses and review registrations before they are used for downstream dose assessment. Further, deformed image datasets can then be transferred directly to ClearCheck for cumulative dose evaluation. AutoContour equips teams with the tools they need to follow patient anatomy over time in complex re-treatment cases.

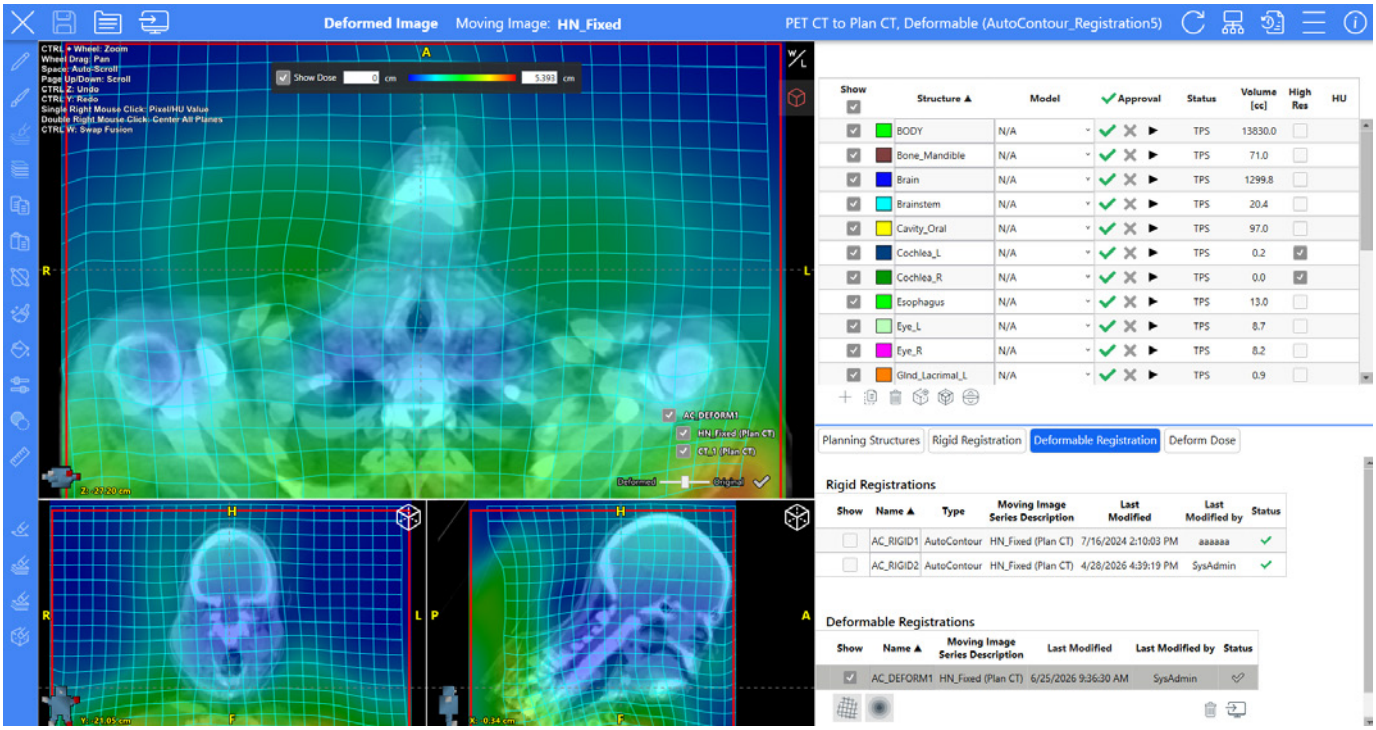


Figure 1. AutoContour's workspace includes visual QA tools, including grid and heat map overlays, that help clinicians review deformable image registrations before cumulative dose assessment.

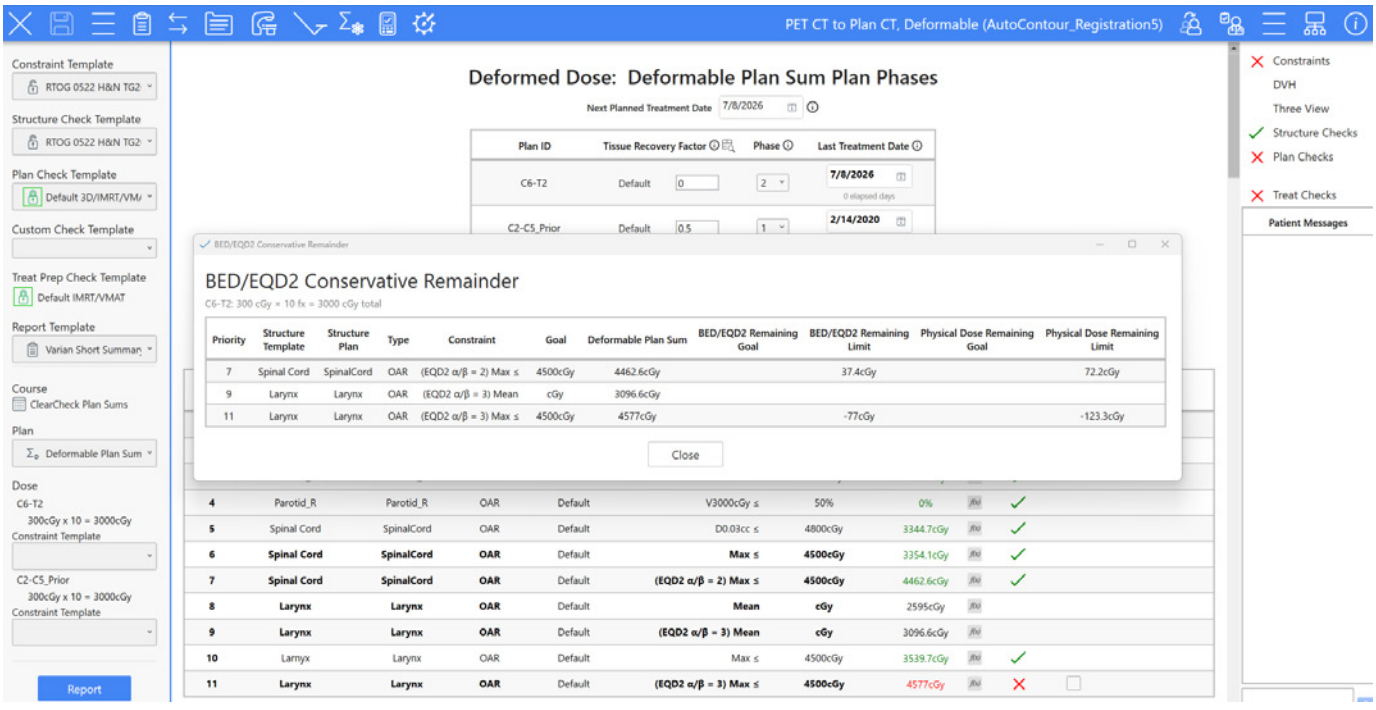


Figure 2. ClearCheck displays cumulative biological dose and the remaining physical dose available after BED/EQD2 conversion, supporting review of complex re-treatment plans.

The latest ClearCheck version includes new tools to better handle the nuances of re-treatment. Create plan sums using the deformed dose information imported from AutoContour, compare plans, and evaluate the impact of cumulative dose using organ-specific recovery factors ob-

tained from the leading research out of the University of Michigan [5]. Follow your plan phases carefully with automatically loaded treatment dates and previous plans. ClearCheck always offers an extensive list of constraint, structure, plan, collision, and prescription checks, so every plan you review is comprehensive. With added visualisation tools for BED/EQD2 dose delivery, you can track and review cumulative dose plans more clearly than ever.

Complex Cases Made Clearer

As the number of patients undergoing re-treatment continues to rise, these cases grow more common and require tools to help handle the inherent complexity. AutoContour and ClevarCheck support the evaluation of cumulative dose in complicated re-treatment cases. Equip your radiotherapy department with manageable, automated workflows that enable reproducible approaches to contouring and planning for reirradiation cases.

If you're interested in learning how AutoContour and ClearCheck will transform your re-treatment workflows, book a demo with a Radformation team member today.

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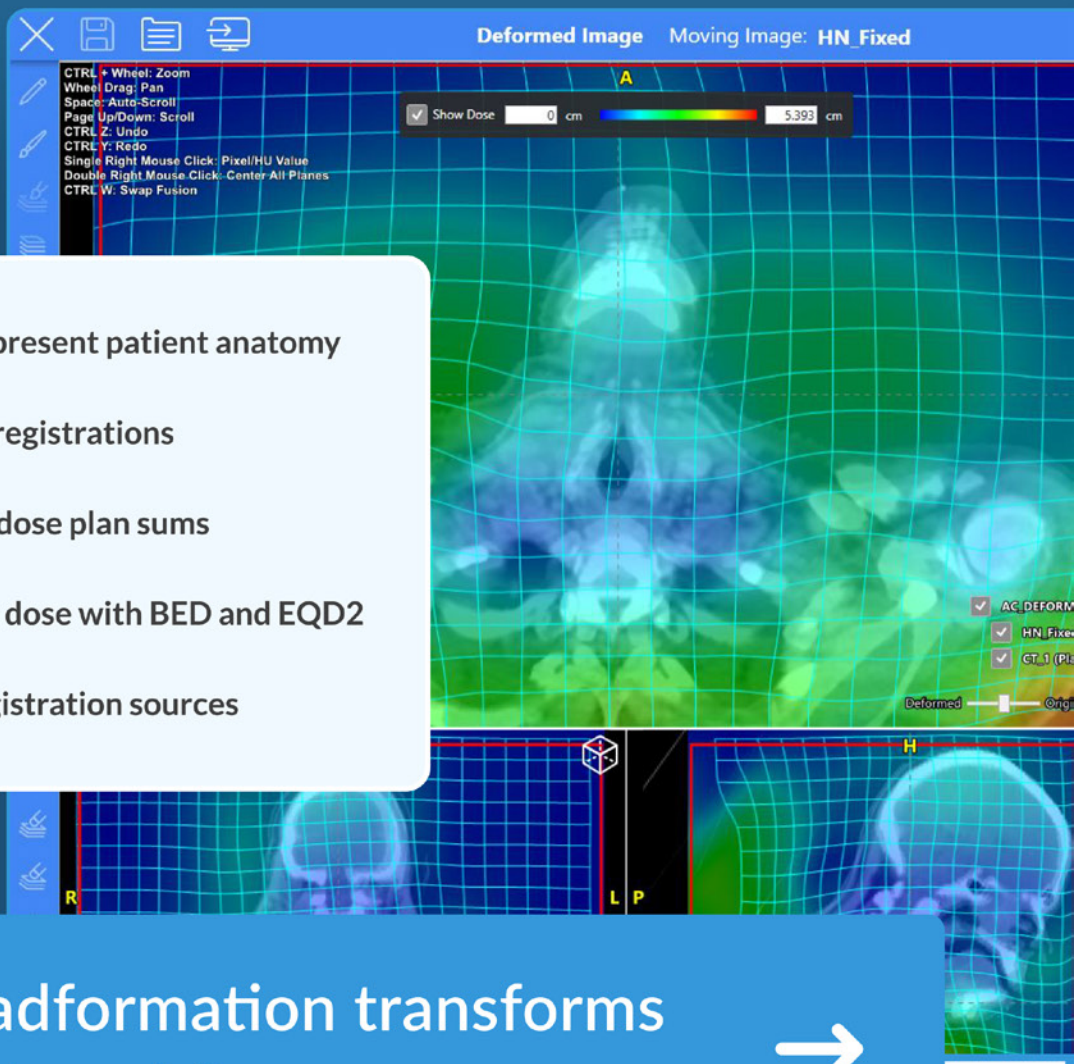


Stefanie Kall has a PhD in biochemistry, where she studied cancer targeting mechanisms. She has over a decade of experience working in research labs to better understand and treat cancers. In her free time, she enjoys reading, playing with her dog and cat, and biking along the Lake Front Trail.

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EPID-Based In-Vivo Dosimetry With LAP RadCalc Software: A User Experience

In-vivo dosimetry (IVD) is the measurement of the dose delivered to the patient during a radiotherapy fraction. It is a final step of the dosimetric quality assurance process and provides a quantitative metric to score the treatment accuracy.

In the Radiotherapy Center at the Santa Maria Annunziata Hospital in Florence, Italy, which is directed by Dr. Silvia Scoccianti, we use our two Elekta Versa HD linacs to treat about 1,000 patients per year. We use the Monaco treatment planning system to perform volumetric modulated arc therapy (VMAT) treatments, with about 30 percent of patients receiving stereotactic body radiation therapy (SBRT) or stereotactic radiosurgery (SRS). Our main aim is to ensure quality assurance in all the treatment steps, given the high complexity of this kind of treatment.



Figure 1. From left to right: Silvia Bettarini, Serenella Russo, Claudia Poggiali, and Andrea Bruschi. Serenella Russo is the senior medical physicist responsible for the radiotherapy activities at the Santa Maria Annunziata Hospital in Florence, Italy.

We have chosen the quality assurance software RadCalc to perform IVD because it allows 3D dose reconstruction of transit and through-air EPID images on the planning CT dataset. Acquired in-vivo images are transmitted back through the patient to determine the incident fluence, differentiating it from all other available solutions.

We use the RadCalc Collapsed Cone Convolution Superposition module for the following routines: the secondary independent dose calculation, the EPID-based pre-treatment QA, the EPID-based IVD, and the log files-based 3D dose reconstruction. It also features an optimized deconvolution kernel for dealing with tissue inhomogeneity.

RadCalc is used daily in our clinic to verify the dose delivered to the patient and to provide adaptive radiotherapy driven by IVD. Our workflow involves the IVD acquisition and analysis for all sessions of SBRT treatments, partial breast irradiation, and fast and forward breast irradiation. Hypofractionated breast cancer and head and neck cancer treatment schedules involve IVD for the first three sessions, followed by a weekly check using IVD for the remainder of the treatment (ranging from 15 days for breast up to 33 days for head and neck). Lung cancer and other prescriptions that involve more than ten sessions follow the same schedule. Trimodality therapy for bladder cancer involves IVD for all treatment sessions. Pelvic region treatments (such as prostate, uterus, whole pelvis, etc.) do not have a default schedule: IVD is performed every time cone beam CT is not perfectly compliant according to OARs, organ filling, or patient belly surface.

RadCalc allows applying different gamma calculation defaults and acceptance criteria based on user-defined rules for DVH and isodoses. We usually perform a dose and gamma passing rate comparison between the TPS planned dose and the daily IVD dose for targets and organs-at-risk (OARs) according to the different treatment sites.

This routine was first implemented for the head and neck region to detect replanning needs due to patient's weight loss or tumour shrinking during the treatment period. An example is reported in Figures 2 and 3, showing IVD dose distributions and DVH acquired on two different days, the first one at the start of the treatment and the second one halfway through the treatment course.

Afterward, we started to extend IVD to all patients, with the help of RadCalcAIR (Automated Import and Report), a routine that provides a fully automated process for plan import, computation, and 3D dose analysis. This way, we are not only able to detect positioning or delivery issues but also additional error sources, such as OAR filling in pelvic region treatments.

One excellent example of RadCalc's performance we observed in our clinic is related to delivery errors: the presence of the linac couch junction bar in the radiation field during the treatment. The ability to detect this kind of issue with IVD allowed us to adjust the patient positioning on the couch for the following radiotherapy sessions, providing the right quality assurance from the start to the end of the process.

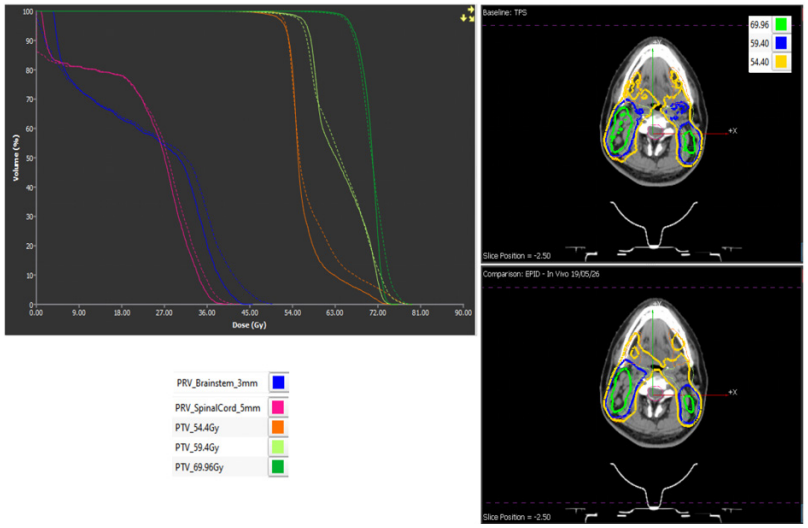


Figure 2. IVD acquired at the start of the treatment for a patient suffering from head and neck cancer. A comparison of the DVHs and dose distributions is displayed. The DVH solid lines represent planned doses, while dashed lines represent IVD doses. They are in very good agreement within 5 percent.

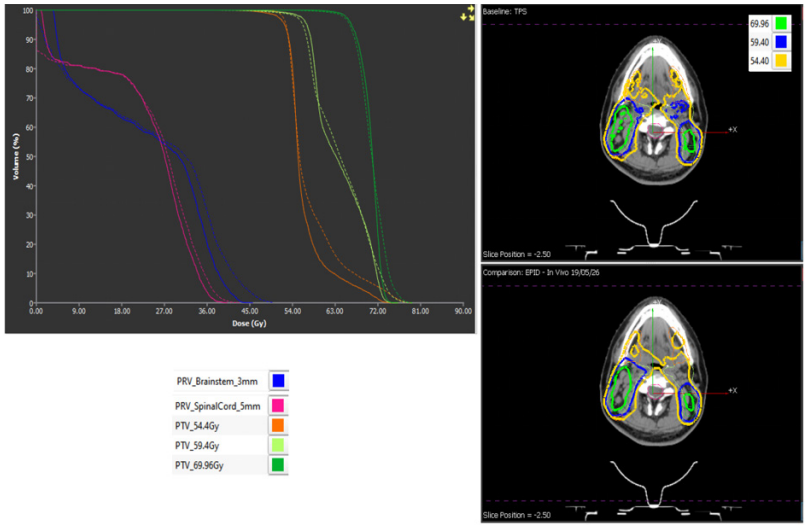
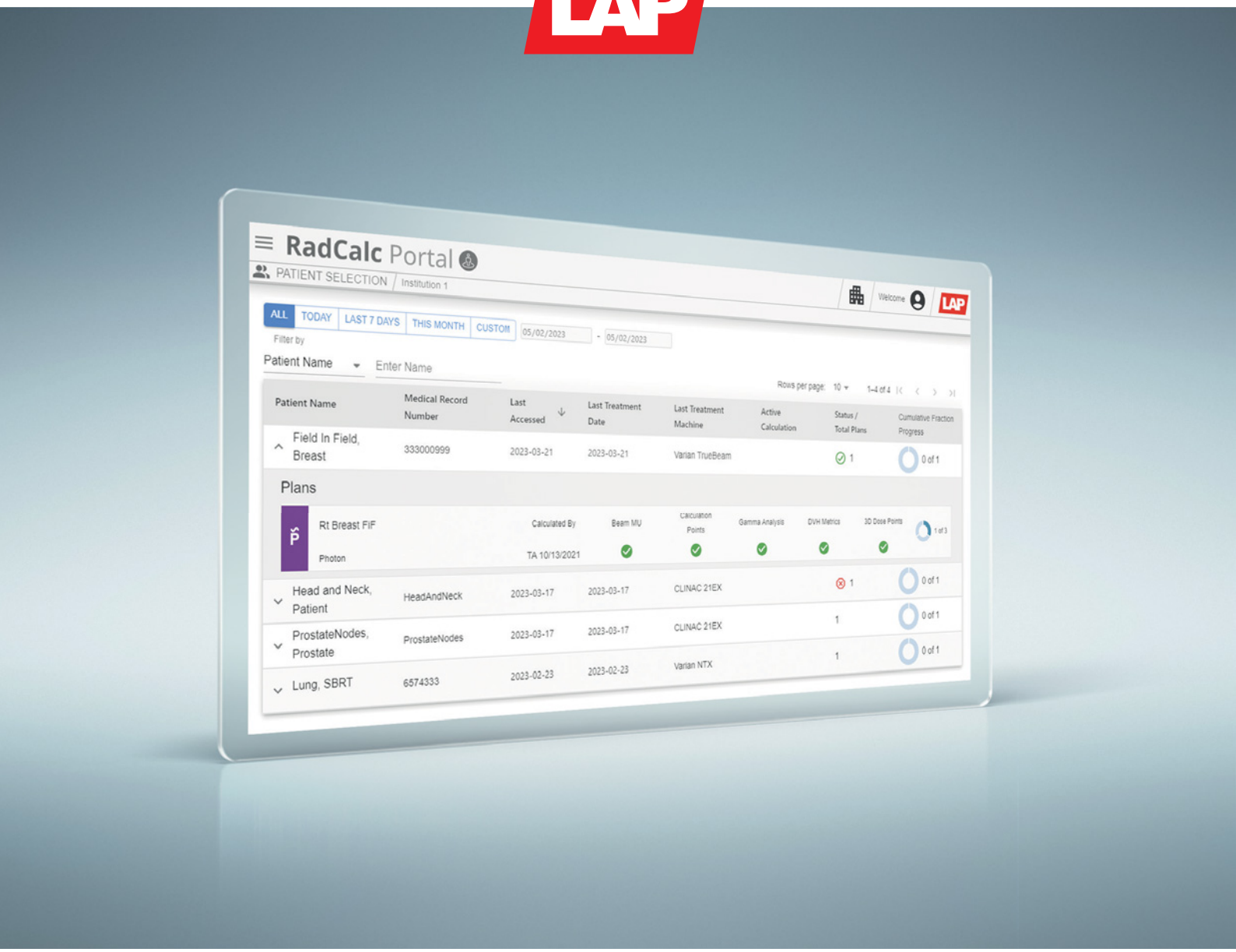


Figure 3. IVD acquired halfway through the treatment for the same patient as Figure 1. In this case, a dose difference of more than 5 percent is shown between planned and IVD doses for targets and reference OARs. CBCTs, in fact, showed significant patient weight loss, in perfect agreement with IVD. The patient replanning on a new CT scan was scheduled after that, ensuring adaptive RT with perfect timing.



Claudia Poggiali is a junior medical physicist at the Santa Maria Annunziata Hospital in Florence, Italy. She graduated in high energy physics at University of Florence and then attended the Medical Physics residency.



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Integrated AI Contouring in Radiotherapy: From Workflow Challenge to Clinical Value

Addressing Variability and Workload in Radiotherapy Contouring

Contouring is a critical step in radiotherapy treatment planning, directly influencing dose calculation, plan quality, and clinical confidence. Yet, it remains one of the most time-consuming and variable tasks in the workflow, with productivity often shaped by staff availability, clinical expertise, and image quality. Even when clinical guidelines are available, interobserver variability can introduce uncertainties, reinforcing the need for tools that improve efficiency while promoting standardization and consistency.

AI-based contouring has emerged as a practical way to support radiotherapy teams by reducing repetitive manual work. Its value, however, depends not only on performance, but also on how naturally it fits into routine practice. Embedding AI-generated contours into the planning environment clinicians already trust simplifies adoption, enabling efficient review without introducing unnecessary complexity.



Figure 1. Embedding AI Contouring into the Treatment Planning Workflow

Siemens Healthineers has developed AI technology for radiotherapy over several years with a clear objective: to make automatic contouring accessible for everyone, within their current clinical workflows. The newest addition to our portfolio, AI Contouring in Eclipse, brings a powerful segmentation engine directly into the treatment planning system, helping departments avoid separate platforms, additional hardware, and disruptive data transfers. Among its key capabilities, AI Contouring in Eclipse offers:

- Local availability in Eclipse and Velocity, with no additional hardware requirements or cloud dependency.
- More than 200 structures for CT and MR, including Organs of Interest, lymph nodes, target volumes, plus the ability to define dependent structures.
- Automatic target contouring for multiple brain metastases*, supporting advanced treatments such as SRS and HyperArc.
- Deep-learning-based contour generation standardized across users and cases, aligned with international guidelines such as RTOG, ESTRO, DAHANCA, and ICRU.

In Eclipse, AI Contouring can be launched directly from the treatment planning system, and tasks are performed locally using the existing workstation or server infrastructure, without the risk of data leaving the facility. Generated contours can then be reviewed and adjusted, using the standard tools already known by the clinical team, preserving

clinical control while minimizing training burden and IT complexity. There's no need to move between systems, manage additional interfaces, export and import datasets, coordinate separate support channels, or align different cybersecurity and procurement requirements. With AI Contouring in Eclipse, the workflow remains simple, reducing handoffs and helping the technology function as a natural extension of the clinical environment.

A configurable template framework further supports consistent structure management across users and sites. Key capabilities include:

- Configuring automatic, manual, and dependent structures to support different workflow requirements.
- Creating dependent structures using Boolean operations, cropping, and margins for precise, reproducible outputs.
- Importing existing Eclipse structure templates, preserving established clinical protocols and avoiding the need to rebuild a workflow from scratch.
- Managing templates through a web portal, streamlining administration and promoting standardized workflows.

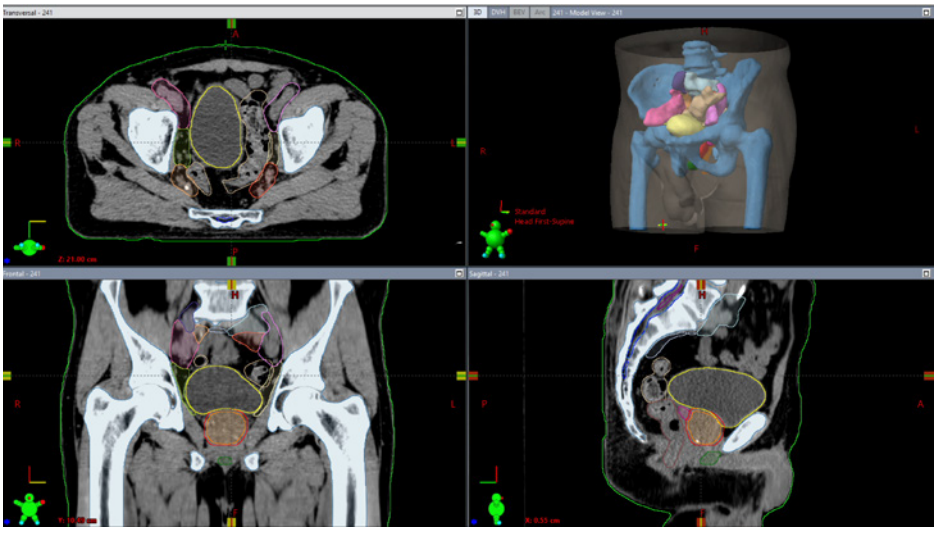


Figure 2.From Automation to Sustainable Clinical Value

AI Contouring in Eclipse empowers clinicians with a consistent, guideline-based starting point, with the power to reduce manual effort and variability, ensuring that final decisions remain firmly in the hands of the clinical team. The results are not intended to replace clinical judgment. but to provide a reviewable and editable foundation that clinicians can adapt, approve, and incorporate into their established workflow.

By combining automation, integration, implementation and support services, the solution enables professionals to focus on valuable activities such as plan optimization, adaptive workflows, decision-making, and patient care. This value is strengthened by the trusted Siemens Healthineers support infrastructure, designed to assist customers throughout implementation and everyday clinical use.

* Feature sold separately.

Availability is subject to applicable regulatory approvals and local market availability.

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Experienced Radiation Therapist and Biomedical Engineering Master with 9+ years of clinical, academic, and industry experience across treatment delivery, simulation, and brachytherapy. Currently a Product Marketing Specialist for Varian Digital Oncology at Siemens Healthineers, supporting Treatment Planning Systems across EMEA, translating clinical needs into solutions that help advance cancer care.

myQA StarTrack³ – Enhanced Detector Design for Unbeatable QA

Introduction

Radiotherapy QA demands a balance between measurement confidence, workflow efficiency, and operational simplicity. myQA StarTrack³ was designed to meet these needs by combining high-resolution beam analysis, broad field coverage, and comprehensive machine QA capabilities into a single detector platform. By enabling evaluation of key beam parameters in one measurement and delivering real-time feedback for verification and trending, myQA StarTrack³ helps clinics reduce QA complexity, improve efficiency, and maintain confidence in treatment delivery. Through streamlined workflows and web-based data management, it supports consistent, quantitative QA from commissioning through routine clinical operation.

The Hardware

MyQA StarTrack³ is a 2D ionization chamber array comprising 509 detectors distributed over a 34 × 34 cm² active area. With detector spacing of 5 mm on the principal axes (7 mm on the diagonal lines) and an effective edge resolution of 2.5 mm, the system delivers precise characterization of beam profiles up to 30 x 30 cm² at isocenter (see Figure 1, left).
The vented ionization chambers and electronics design ensure a dose resolution of 0.5 cGy and non-linearity of ±0.5% up to a maximum dose rate of 2500 MU/min.

The detector offers wireless operation, enabling easy and fast setup in less than 5 minutes.

The detector design also uses selected chambers for energy verification of both photon and electron beam quality assessments (see Figure 1, right). Photon beam energy constancy can be performed in the 4MV-18MV range. A set of two RW3 wedges placed along the diagonals (see Figure 2, left) provides varying build-up across the detector, allowing the calculation of a quantity correlated with the $TPR_{20,10}$ metric.

Electron beam energy constancy is performed via a plate featuring different metal absorbers symmetrically positioned about 8.5 cm from the center of the detector array (see Figure 2, right). Each absorber provides a different water-equivalent depth, enabling the measurement of the R_{50} metric.

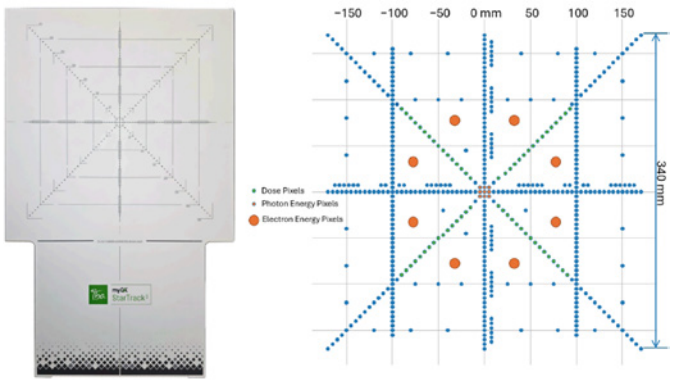


Figure 1. myQA StarTrack3 detector on the left and a schematic view of the inner pixel distribution on the right.



Figure 2. the Photon Energy Verification Plate on the left and the Electron Energy Verification Plate on the right. The electron energy plate features Al, Ti, and Cu absorbers of variable thicknesses.



Figure 3. myQA StarTrack3 WebApp. A 6 MV 20 x 20 cm² field is irradiated through the photon energy verification plate. Profile features are assessed via DIN protocol (inline and crossline) while the diagonal wedge absorption is clearly visible.



Figure 4. 6 MV 10 x 10 cm² at 5 cm water-equivalent depth, SDD = 100 cm, for water phantom (red) and myQA StarTrack3 (blue).

The Software

The myQA StarTrack³ WebApp is a modern, web-based software platform designed to seamlessly manage, analyze, and report on QA measurements for external beam radiation therapy machines.

Through manual or automated acquisition, photon and electron beam profiles are acquired. A measurement workspace allows flexible data acquisition, enhanced by the live data visualization with real-time analysis tables (see Figure 3).

The QA tests available in myQA StarTrack³ WebApp resemble international guidelines for machine QA such as TG-142. In particular, the software features profile constancy based on selected protocol (e.g. flatness, symmetry, and field width in multiple directions), output constancy, light/radiation field coincidence, and energy verification. Each test type includes automated analysis and generates a pass/warning/fail result based on user-defined or default tolerances.

Towards waterless commissioning

Waterless commissioning offers an efficient alternative to conventional water-tank measurements for periodic linac QA. myQA StarTrack³ and its dedicated analysis software significantly reduce setup time, simplify workflows, and minimize machine downtime. The fixed detector geometry improves measurement reproducibility and reduces uncertainties associated with detector positioning and water phantom alignment. myQA StarTrack³ is equipped with different RW3 build-up plates, allowing it to reproduce different water-equivalent depths. Profiles measured with myQA StarTrack³ showed strong agreement with water phantom measurements and comfortably met established 1% / 1 mm evaluation criteria for symmetry, flatness, field width, and penumbra analysis (see Figure 4).

Conclusion

MyQA StarTrack³ combines high resolution beam analysis, comprehensive machine QA testing, and automated web-based evaluation in a single platform, enabling clinics to perform efficient, reproducible, and quantitative QA with confidence. By delivering measurement results comparable to conventional water phantom methods while significantly reducing setup time and workflow complexity, it provides a practical path toward streamlined, waterless commissioning and routine linac verification.



Dr. Paola Solevi earned her PhD in Physics at CERN, developing innovative QA solutions for hadron therapy. As a Marie Curie Fellow and senior postdoc, she conducted research in nuclear medicine and advanced detector technologies in different European Universities. She joined IBA Dosimetry in 2019 and currently leads the Physics Team.



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- Optimized QA workflow

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Patient-Specific QA: How Measurement-Based and Software-Based Approaches Complement Each Other

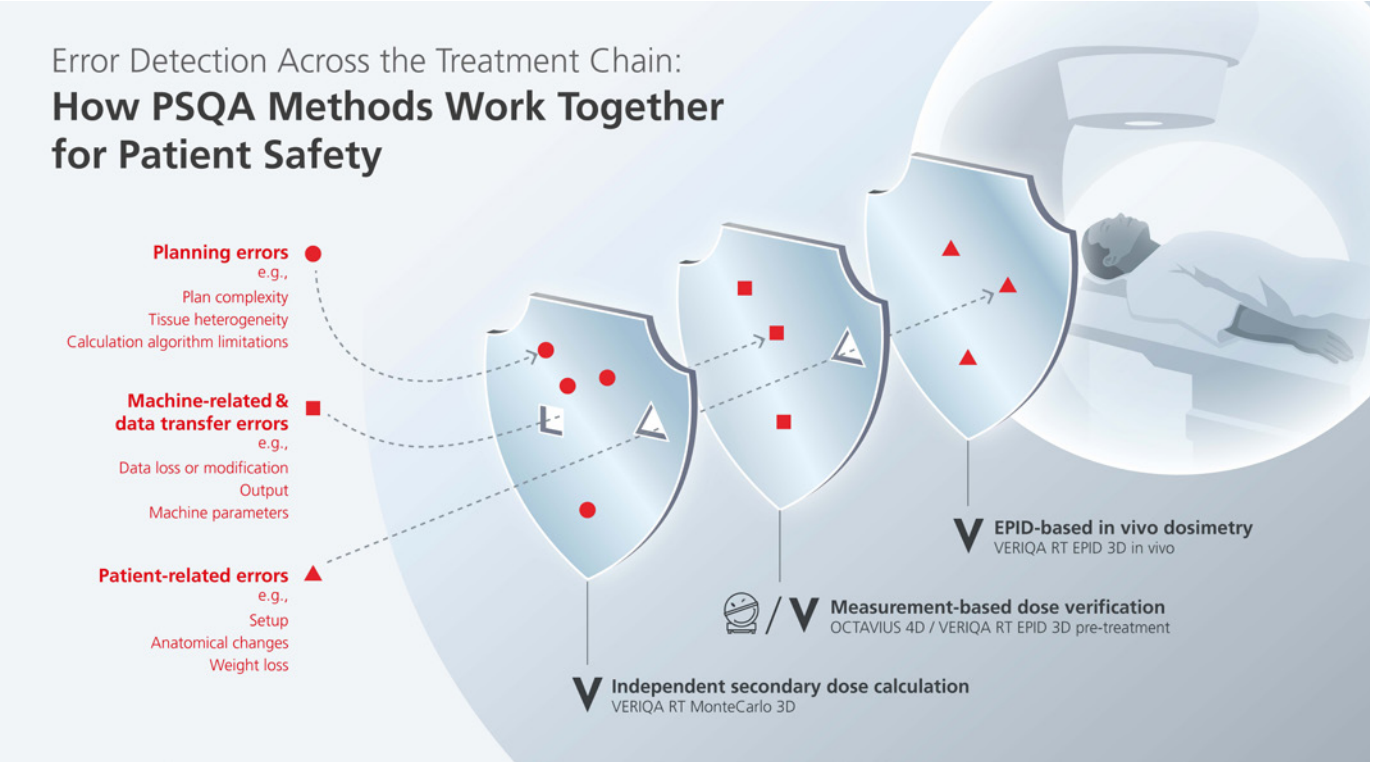


Figure 1. Different PSQA methods address different error sources. Independent dose recalculation, EPID dosimetry, and phantom-based measurements provide complementary verification of planning, transfer-related, machine-related, and patient-specific errors.

Patient-specific quality assurance (PSQA) must ensure the highest level of accuracy while operating within limited resources. For many years, PSQA relied exclusively on measurement-based methods, and the detectors and phantoms developed for this purpose have played a decisive role in shaping dosimetric quality assurance in radiation therapy. Software-based approaches for independent secondary dose calculation provide additional options. This article outlines how PSQA has evolved, which methods are available today, and how their targeted use can be combined into a robust and efficient quality assurance system.

PSQA: Measurement-Based or Software-Based?

The purpose of PSQA is to detect errors and provide insight into their causes. Potential errors in radiation therapy may arise in four main areas: in addition to planning errors, transfer errors, machine-related errors, and, not least, patient-specific errors can occur. The latter can only be reliably detected during patient treatment, for example through EPID in vivo dosimetry.

According to established guidelines and recommendations (DIN 6875-3 or AAPM TG-218/TG-

219), pre-treatment dose verification can be performed either through measurements (e.g., using a phantom or EPID) or through dose recalculations. However, the two approaches differ significantly in terms of accuracy and required effort.

Historically, PSQA was based exclusively on measurement-based methods: initially using film, followed by ionisation chambers, and today employing sophisticated detector array systems and phantoms such as OCTAVIUS by PTW. These methods require manual procedures and are therefore time- and resource-intensive. Nevertheless, they remain an important reference standard for dosimetric quality assurance of both patient treatments and linear accelerators.

Digital, software-based solutions for independent secondary dose calculation are becoming increasingly important. At the centre of this development is the Monte Carlo algorithm.

Independent Dose Recalculation with Monte Carlo

Independent secondary dose calculations automatically recalculate a treatment plan and compare the result with the primary dose calculation, without requiring additional machine time or staff effort. Clinically unremarkable plans that pass the secondary calculation generally do not require further review by the medical physics team.

The proportion of plans that pass stringent acceptance criteria depends strongly on the algorithm used. Analytical methods exhibit greater variability, resulting in a higher number of false alarms that must subsequently be reviewed manually. In contrast, Monte Carlo (MC) algorithms provide greater accuracy while requiring no additional effort.

A study published in 2025 by Hoffmann et al. [1] in the Journal of Applied Clinical Medical Physics compared the MC algorithm SciMoCa, as implemented in PTW's VERIQA RT MonteCarlo 3D, with the analytical algorithm used in Mobius3D. While the latter showed dose differences of up to 6% and gamma pass rates as low as 30%, SciMoCa achieved pass rates exceeding 95% and demonstrated only minor variability, with deviations remaining close to the acceptance threshold. The study concluded that MC-based dose recalculation provides a significant clinical benefit for PSQA and enables substantially more stringent acceptance criteria while reducing verification effort.

EPID Dosimetry: Dose Verification Before and During Patient Treatment

EPID dosimetry can be used in two distinct ways: before treatment ("pre-treatment") and during treatment ("in vivo").

For pre-treatment plan verification, EPID dosimetry with VERIQA RT EPID 3D pre-treatment provides a fast and efficient solution without the need for phantom setup.

EPID-based in vivo dosimetry with VERIQA RT EPID 3D captures the dose actually delivered during each fraction, enabling continuous monitoring of the entire treatment delivery chain, including patient-specific factors such as anatomical changes or positioning deviations. Errors arising after plan verification become visible and quantifiable.

Not Every Method Fits Every Plan

The availability of software-based approaches expands the PSQA toolkit but does not completely replace measurement-based methods. Phantom measurements, independent dose recalculations, and EPID dosimetry each have distinct strengths, address different error sources, and vary in the effort required. Their areas of application overlap only partially, and it is precisely this limited overlap that creates their complementary value.

Monte Carlo dose recalculations evaluate the treatment plan in the background without addi-

tional effort and provide fast, accurate dose verification before treatment. They primarily detect planning-related errors but can be applied automatically to every plan.

Pre-treatment EPID dosimetry extends this approach by additionally accounting for transfer-related and machine-related errors. EPID-based in vivo dosimetry further identifies deviations that arise only during treatment delivery to the patient.

When a measurement is required, either EPID-based measurements or conventional phantom measurements with OCTAVIUS may be selected, depending on the application. Both approaches have a well-defined role within a comprehensive PSQA program. EPID-based measurements with VERIQA RT EPID pre-treatment do not require phantom setup and are well suited for standard treatment plans and routine applications. In contrast, phantom measurements with OCTAVIUS remain indispensable for very large treatment fields, off-axis or non-coplanar fields, and complex stereotactic treatments with demanding dosimetric requirements.

The Art Lies in Choosing the Right Combination

The key challenge in modern PSQA is no longer access to verification methods but their intelligent combination. An effective program defines differentiated verification protocols for different classes of treatment plans according to their respective risk profiles.

Not all treatment plans carry the same level of risk. Highly modulated or hypofractionated treatment plans, moving target volumes, and patients with highly variable anatomy require more intensive verification than less complex plans. Automation and clearly defined acceptance criteria therefore become the foundation of a consistently reliable PSQA program.

A Proven Combination in Clinical Routine: MC Dose Calculation and EPID In Vivo

For the majority of treatment plans used in routine clinical practice, particularly standard plans and applications, one combination has proven especially effective: MC-based dose recalculation together with EPID in vivo dosimetry. Both methods can be integrated smoothly into the clinical workflow, with many processes running automatically in the background.

MC enables verification of dose calculation accuracy without additional clinical workload. EPID in vivo dosimetry indicates whether deviations occur later in the treatment delivery chain, both on a fraction-by-fraction basis and throughout the entire course of treatment.

This is particularly relevant for online adaptive radiation therapy (oART). Since a new treatment plan is generated each day and conventional measurement-based dose verification before treatment is no longer feasible, EPID in vivo dosimetry takes on a special role: it confirms that the daily adaptive plan has been delivered correctly.

Conclusion

MC-based dose recalculation and EPID in vivo dosimetry (e.g., with VERIQA) form the foundation of an efficient and safety-oriented PSQA program for the majority of treatment plans. The MC approach enables accurate and efficient dose verification prior to treatment while reducing false alarms compared with systems based on other algorithms. EPID-based in vivo dosimetry extends quality assurance to the entire error chain and treatment phase.

When a measurement is beneficial or required, for example in specialised applications, either EPID-based measurement with VERIQA RT EPID 3D pre-treatment or conventional phantom measurement with OCTAVIUS can be used, depending on the application. The goal is not a PSQA program that measures as much as possible, but one that

measures what matters, at the right time, using the appropriate method.

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[1] Hoffmann L, Linaa M-B, Møller DS, Independent secondary dose calculation for patient-specific quality assurance: Quantitative benefit of Monte–Carlo and custom beam modeling, Journal of Applied Clinical Medical Physics 26, e70265 (2025). https://doi.org/10.1002/acm2.70265



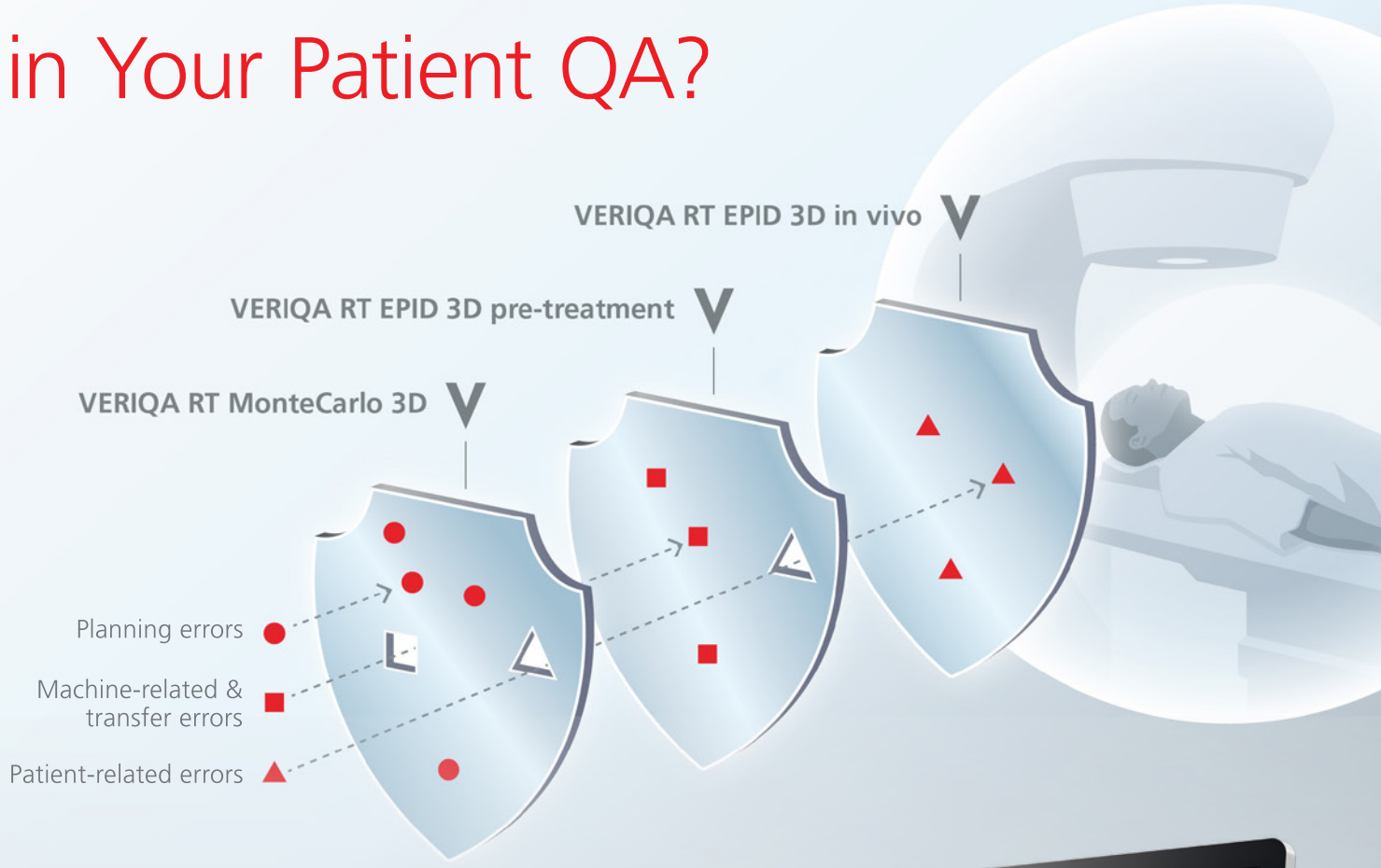
Nicole Brand is Product Manager at PTW Freiburg with a Master's degree in Physics from the University of Tübingen and accreditation as a medical physicist. She previously worked as a clinical physicist at Schwarzwald-Baar Klinikum Villingen-Schwenningen. At PTW, she is responsible for developing and clinically validating the VERIQA platform.



Julia-Maria Osinga-Blättermann is Product Manager at PTW Freiburg and holds a PhD in Medical Physics from Ruprecht-Karls University Heidelberg (2016). She joined PTW in 2018 and is now responsible for the development and clinical validation of the VERIQA RT EPID 3D software module.

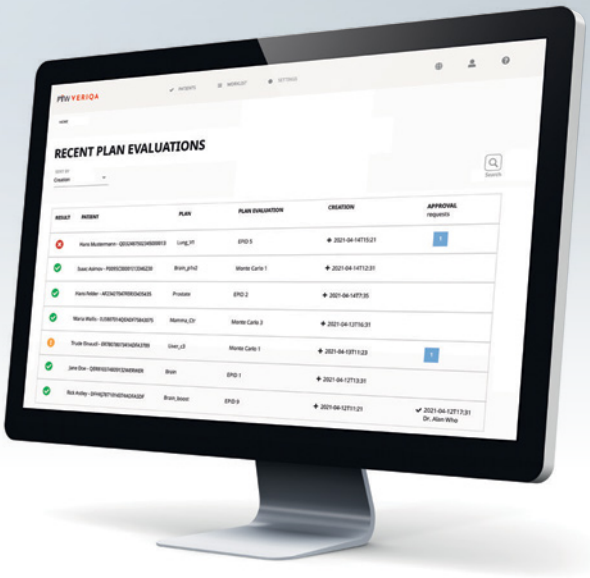
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RaySafe: Supporting Medical Physicists in the Fight Against Unnecessary Radiation



Figure 1. RaySafe X-ray test equipment set up for quality assurance measurements in a mammography room.

Every year, billions of diagnostic X-ray examinations are carried out worldwide, and while imaging remains essential to modern medicine, it inevitably exposes both patients and staff to ionising radiation. Reducing that exposure without compromising diagnostic quality is one of the enduring challenges facing medical physicists and radiation protection professionals across Europe. RaySafe has built its entire business around addressing exactly this challenge, operating alongside Fluke Biomedical as sister brands within Fluke Health Solutions, part of the Fortive group of companies.

A Company Built Around Radiation Safety

Headquartered in Hovås, Sweden, as Unfors RaySafe AB, the company positions itself as a specialist in X-ray dosimetry management, with a stated mission to help reduce unnecessary radiation exposure and to strengthen safety culture in imaging departments. RaySafe's portfolio spans three main areas: X-ray test equipment for quality assurance, real-time personal dosimetry for clinical staff, and radiation survey meters for broader environmental and occupational monitoring.

X-ray Quality Assurance: The RaySafe X2 Family

The flagship RaySafe X2 system was among the first of its kind on the market, and its combination of orientation-independent sensors and correction-free measurement has effectively set the industry benchmark for precision and simplicity in X-ray QA testing. The system is designed to simplify quality assurance testing across radiography, fluoroscopy, mammography, and computed tomography, letting a physicist connect a sensor and take a full set of readings—dose, kVp, HVL, waveform data, and more—in a single exposure, without the need to select ranges or apply manual corrections. A more compact variant, the X2 Solo, is built on the same underlying technology but, rather than covering multiple modalities, is offered as dedicated single-modality models tailored to specific measurement needs, including a configuration designed specifically for dental imaging. Data can be exported to the RaySafe View software, which integrates with Microsoft Excel for further analysis and reporting.

Real-Time Personal Dosimetry: RaySafe i3

For staff working in interventional and fluoroscopically guided procedures—where scattered radiation exposure is a persistent occupational concern—RaySafe offers the i3 real-time dosimetry system. Rather than waiting weeks for badge-based dose reports, i3 dosimeters transmit readings continuously to a display or hub, giving staff immediate, colour-coded feedback on their dose rate. The underlying aim is behavioural: by making exposure visible in the moment, staff can adjust positioning or shielding practices in real time, reinforcing an ALARA-based safety culture rather than relying solely on retrospective monitoring.

Radiation Survey Meters: RaySafe 452

The RaySafe 452 survey meter, and its Fluke Biomedical-branded counterpart, the 452R, extend this same philosophy to broader radiation protection work. Combining silicon diode sensors with a Geiger-Müller tube, the 452 is designed to measure across a wide range of radiation types and energies—air kerma, ambient dose equivalent, and count rate—without requiring manual corrections. This versatility has made it a common choice not only in diagnostic imaging departments, for tasks such as tube leakage and scatter measurements, but also in nuclear medicine and industrial settings such as non-destructive testing, where a single, ruggedised instrument can serve multiple purposes.

Service, Calibration, and Ongoing Support

Beyond hardware, RaySafe maintains a calibration and repair service programme intended to keep instruments within specification throughout their working life, alongside technical support and an extensive library of application notes, white papers, and training webinars aimed squarely at the physics and biomedical engineering community.

Why It Matters for EFOMP Members

For EFOMP's network of medical physicists, RaySafe's relevance lies less in any single product and more in the broader proposition: practical tools that make routine QA and radiation protection work faster and more consistent, paired with data management software that supports the documentation demands of modern regulatory frameworks. As diagnostic workloads continue to grow across Europe, instruments that reduce setup time without sacrificing measurement rigour are likely to remain a recurring topic of interest for the profession.



Figure 2. Calibration and repair services are intended to keep instruments within specification throughout their working life.



Patrik Andersson is Global RaySafe Product Manager at Fluke Health Solutions, based in Hovås, Sweden. He leads product strategy for the RaySafe portfolio of X-ray test equipment, real-time personal dosimetry, and radiation survey meters, working with medical physicists across Europe to translate quality assurance and radiation protection needs into practical measurement tools.

RTI Mako Achieves Milestone Accreditation for Dosimetry

RTI Mako demonstrates its excellence in dosimetry, while continuing to expand the platform's capabilities.

RTI Mako platform evolution

Mako is RTI's next-generation platform for X-ray quality assurance, developed to be the leading X-ray test tool for QA measurements across radiography, fluoroscopy, mammography, dental imaging, CT, and more.



Figure 1. Mako meter with the app-powered display.

Since its launch in 2024, the RTI Mako platform has evolved with new software features, updated lab accreditations, new cloud features, support for newly-launched X-ray systems, and the major launch of the **Mako Display App** last year.

RTI Group continues its investment in product development, **launching the new Mako SDK** (software development kit) in May 2026. The Mako SDK allows users to communicate directly with the system, using any third-party software to extract measurement data into any custom software solution. The Mako SDK is particularly well suited for OEMs, manufacturing environments, automated test systems, end-of-line production testing, quality control, and organizations developing their own service or quality assurance software.

Major milestone for Mako's dosimetry excellence

In addition to the platform's continued evolution, in **July 2026**, RTI Mako **achieved one of the highest accreditation certificates possible** for an X-ray dosimeter, with PTB approval.

PTB (Physikalisch-Technische Bundesanstalt) in Germany is one of the world's leading reference laboratories for X-ray dosimetry, which verifies an instrument's performance against the requirements of the German Measurement and Verification Ordinance (MessEV), the German Measurement Act (MessEG), and relevant IEC standards, including IEC 61674 for diagnostic X-ray dosemeters.

As part of the certification process, Mako underwent comprehensive testing of measurement accuracy, energy dependence, dose rate dependence, temperature and humidity influence, long-term stability, repeatability, electromagnetic compatibility (EMC), and verification of the complete firmware and software chain.

Mako achieved certification across all 3 applied areas **including R/F (radiography / fluoroscopy),**

Mammography and CT applications. This certification across the widest application range possible validates the RTI Mako system as the leading X-ray test tool available.



Figure 2. Mako accredited by PTB.

The Mako SDK expands software capability

The Mako SDK supports the complete Mako ecosystem, including all Mako probes, modules, and external probes. Users can customize their own software to communicate with Mako and utilize the wireless capability of the system, or alternatively connect via USB cable.

The Mako SDK comes with an example test application to simplify startup for new users, and full documentation to allow seamless data extraction (measurements & waveform data). The Mako SDK is compatible with Windows 10 and Windows 11. with the test application available in both C# and Python programming languages, to broaden the application to a wider range of software development solutions.



Figure 3. Mako SDK

The most comprehensive software choice in X-ray testing

The modular Mako system combines the broadest application range in all X-ray modalities, with the widest choice of software and display options. Whether you are a physicist, service engineer, X-ray technician or anyone working in healthcare quality assurance, RTI Mako has the solution.
Users can perform instant measurements with the Mako Display, for instant display and no selection required to measure. The App can be downloaded for free on any device (Google Play) with unlimited number of users. If you prefer a tablet, the App can be downloaded on any Android tablet, or Ocean Next software can be downloaded to any Windows tablet. For PC users, the Ocean Next software has the most comprehensive capabilities to streamline workflows and automate reporting.

For those users of iOS / Apple, stay tuned for even further product development news later this year!
The most comprehensive software choice in X-ray testing

The modular Mako system combines the broadest application range in all X-ray modalities, with the widest choice of software and display options. Whether you are a physicist, service engineer, X-ray technician or anyone working in healthcare quality assurance, RTI Mako has the solution.

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For those users of iOS / Apple, stay tuned for even further product development news later this year!



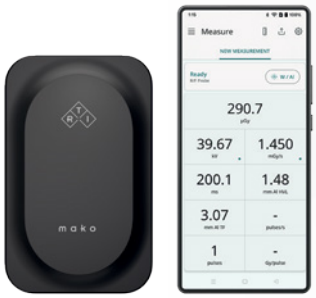
Figure 4. Choose your workflow. With Mako, your workspace is wherever your phone, tablet, or laptop is.



Michael Olding, PhD, is Vice President Solutions at RTI Group. Michael works on the interface between product development at RTI and global end users of RTI's products & solutions (physicists, engineers and medical professionals), and is passionate about ensuring user needs are at the forefront of new product development at RTI Group.

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- **School for Stereotactic Body Radiotherapy,** Cluj, Romania, 29th–31st October, 2026

- **Physics, Technology and Biology in Clinical Proton and Ion Beam Therapy, ECMP 2026,** Valencia, Spain, 23rd September, 2026
- **Auto Contouring methods for Radiotherapy, ECMP 2026,** Valencia, Spain, 23rd September, 2026
- **Diagnostic and Therapeutic Ultrasound: Physics, Techniques and Clinical Applications, ECMP 2026,** Valencia, Spain, 23rd September, 2026
- **Patient Discharge following Molecular Radiotherapy** Valencia, Spain, 23rd September, 2026
- **EFOMP Workshop Image Reconstruction for Quantitative Molecular Diagnostics & Radionuclide Therapy** Valencia, Spain, 23rd September, 2026

- **Dosimetry for Radiology, Diagnostic Imaging (CT, Mammography, PET, SPECT, CBCT) / Radiation Therapy Prague,** Czech Republic, 4th–6th February, 2027
- **Theranostics in Nuclear Medicine** Athens, Greece, 22nd-24th April, 2027
- **Magnetic Resonance Imagine** TBC, 2027

- **Artificial Intelligence in Medical Physics** ESMPE course on e-LEMENT educational platform
- **School on Statistical methods in Medical Physics** ESMPE course on e-LEMENT educational platform

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Report of EFOMP Special Interest Group for Radionuclide Internal Dosimetry (SIGFRID) for 2025

Introduction
The SIGFRID was created in early 2021, with a kick-off meeting organised on March 8th 2021. Number of members: 277 (December 23rd 2025) from 44 countries (including Individual Associate Members outside Europe).

Steering Committee: sc.sigfrid@efomp.org
- Manuel Bardiès (MB)
- Julia Franziska Brosch-Lenz (JBL)
- Carlo Chiesa (CC)
- Gerhard Glatting (GG)
- Silvano Gnesin (SG)
- Pablo Minguez Gabiña (PMG)
- Katarina Sjögreen Gleisner (KSG)
- Lidia Strigari (LS)
- Steffie Peters (SP)

SIG Board: board.sigfrid@efomp.org
- Manuel Bardiès: chair.sigfrid@efomp.org
- Pablo Mínguez Gabiña: vchair.sigfrid@efomp.org
- Katarina Sjögreen Gleisner: sec.sigfrid@efomp.org

General SIG meetings
General SIG meetings are organised regularly, with an interval of about 4-6 months. General SIG meetings during the period covered by this report:
- 10/01/2025
- 30/06/2025

A public presentation of SIGFRID activities was given on 15/11/2025 during SMRD2.

SIG priorities
The current SIG priorities are listed below:

Priority 1: Scientific Activities
Scientific activities currently include Scientific meetings and Case reports. Attendance is free. Presentations should later be available to IAMs on the eLearning platform. Three scientific meetings and three case reports were organised in 2025:

Scientific meetings:
Scientific meetings consist of presentations on a specific scientific topic, followed by a general discussion (total duration: 2 h).
04/02/2025
Absorbed dose effect relations in PRRT
17/06/2025
Free software for nuclear medicine dosimetry
21/10/2025
PVC in RNT Dosimetry

Case reports:
Case reports consist of a 30-minute presentation of a clinical dosimetry case, followed by a 30-minute discussion (total duration: 1 hour).
15/04/2025
Dosimetry protocols with restricted image acquisition requirements
12/08/2025
Dosimetry in [177Lu]Lu-PSMA therapy
02/12/2025
Automatic lesion segmentation using an in-house developed segmentation tool
Lesion segmentation with OpenDose3D

Priority 2: Focus groups
Focus groups (FGs) are proposed by members

of the SIGFRID to the Steering Committee. FGs comprise SIG members, but non-physicists can be invited as consultants when needed. Meetings are virtual. Intermediate advancement reports are provided to the SC every 6 months to evaluate and approve FG activities.
The following FGs are currently working within the SIGFRID to varying degrees of completion.

- FG1: Time-Activity Data Fitting
- FG2: Treatment Planning Software Benchmarking
- FG3: Absorbed-Dose-Effect Relationships
- FG4: Voxel S Value Generation and Benchmarking
- FG5: DICOM Standard for molecular radiotherapy dosimetry
- FG6: Activity calibration standardisation
- FG7: MRT dosimetry education
- FG8: Simplified dosimetry

Priority 3: Teaching/education/dissemination
Basic Dosimetry webinars
The most important achievements are the generation of 24 webinars on basic clinical MRT dosimetry. The webinars are freely accessible on EFOMP YouTube channel

ESMPE school
The ESMPE school: Radionuclide Internal Dosimetry, held in Prague on February 13th-15th, 2025, provided hands-on exercises in dosimetry for various radionuclide internal therapies.
The presentations should be available on the eLearning platform.

EFOMP/EANM Core Curriculum revision.
This joint EANM/EFOMP WG was created in April 2022 for a 2-year term.
Several members of the SIGFRID are associated with revising the dosimetry chapter of the Core Curriculum. This document is in the final revision (currently undergoing NMO review).

Priority 4: Communication
SIGFRID newsletters have been released to SIGFRID members every month. In the newsletter, the new SIGFRID members are welcomed, the activities corresponding to the priorities of the SIGFRID are updated, the most interesting papers of the month on dosimetry in radiopharmaceutical therapy are mentioned, as well as the forthcoming international meetings.
The SIGFRID also contributes to EMP news by providing a quarterly summary of activities to the medical physics community (4 articles have been published in EMP news in 2025). Apart from these 4 articles, specific articles were sent on other topics.
The SIGFRID webpage is updated regularly.
Communication among SIGFRID members is done via Slack or the SIGFRID mail list.

Priority 5: Professional/Regulatory/Economic matters
EFOMP participated in the EU tender "SAMIRA study on the implementation of the Euratom and the EU legal bases with respect to the therapeutic uses of radiopharmaceuticals".
The SIMPLERAD final report is available here: SimpleRad final report.

EMA collected opinions from the stakeholders about a Concept paper on clinical evaluation of therapeutic radiopharmaceuticals in Oncology. EFOMP asked the SIGFRID steering committee to produce a review of the proposal. The review was endorsed by the EFOMP Board and sent to EMA. In addition, Carlo Chiesa informed the Cancer Patients Europe (CPE) through its CEO.

Carlo Chiesa developed a survey about the possibility of administering Lutathera more than 4 times. The work is ongoing and a report should be generated.

Symposium on Molecular Radiotherapy Dosimetry

- The second edition of the Symposium on Molecular Radiotherapy Dosimetry (SMRD2) was held in Athens from 13th to 15th November 2025:

- The SIGFRID Steering Committee was heavily involved in its organisation.
- Quick facts:
  - 225 participants from 32 countries
  - 125 abstracts received
    - 60 oral communications
    - 50 ePosters (including 25 fast ePoster presentations)
  - 6 Scientific sessions:
    - Methodology and quality assurance
    - Patient dosimetry and clinical trials
    - Software
    - Absorbed dose-effect relationship
    - Artificial intelligence and modelling
    - Preclinical and miscellaneous
    - 4 Sister Societies sessions:AAPM, EANM, SNMMI & EURADOS
  - 14 sponsors
  - Programme, abstract book and invited talks are available here.
  - A summary of the event can be found in the Winter 2025 edition of EMP News (p. 84).



Figure 1. SIGFRID Steering Committee at the SMRD2 - Athens, Nov 2025.



Katarina Sjögreen Gleisner is a full professor in medical physics since 2017, Lund university, received her PhD in 2001. Worked until 2011 as clinical medical physicist and in academia, with research in molecular radiotherapy and clinical trials. She is also study director of medical physics and supervises PhD students in medical physics and oncology



Manuel Bardiès obtained his Doctorate on radiopharmaceutical dosimetry from Toulouse University, France in 1991. He has been developing his research in radiopharmaceutical dosimetry within INSERM (National Institute of Health and Medical Research) since 1992 in Nantes, then in Toulouse (2011), and in Montpellier since 2021. Manuel Bardiès was one of the founders of the EANM Dosimetry Committee (member from 2001 to 2013, chair 2009-2011). He chaired the EFOMP Science Committee between 2014 and 2016, and is the convenor and the current chair of the EFOMP Special Interest Group for radionuclide internal dosimetry.



Pablo Mínguez Gabiña (PhD Lund University) is a senior medical physicist at the Gurutzeta/Cruces University Hospital in Barakaldo, Spain, and a part-time professor at the faculty of engineering of the University of the Basque Country in Bilbao. He serves as the Vice-Chair of the Steering Committee of SIGFRID.

ECMP 2026: A Launchpad for Your Career



Valencia is gearing up to host a dedicated Early Career track focused on mentorship, sustainability, and the real-world skills you need to thrive.

If you're a medical physicist early in your career, the upcoming European Congress of Medical Physics in Valencia has something for you. Alongside the scientific sessions and technical workshops, this year's congress includes an Early Career track built around the day-to-day challenges of the profession: finding mentors, building a network, and learning to speak up in a room full of specialists.The congress aims to create a unique space where young professionals can connect, exchange ideas, and grow. Whether you're still a student, working through residency, or a couple of years into your first hospital post, the sessions are aimed at the problems you're actually dealing with right now.

The Mentorship program

Mentorship sits at the center of the Early Career track. The "Mentoring Young Scientists" session looks at the EFOMP Mentorship Programme and what actually makes the mentor-mentee relationship work.

It's not just about being assigned a supervisor. The session covers what you get out of being mentored (guidance, fewer avoidable mistakes, a faster learning curve) and also what mentors get out of it, since teaching someone else tends to sharpen your own leadership and understanding of the field. There's practical advice too: how to find a mentor, how to keep that relationship going, and what it takes to become one yourself down the line.

Speaking the same language

Explaining physics to patients, clinicians, or hospital administrators isn't something most physicists are trained to do well. The session "Skills in Medical Physics: How to present Physics to non-Physicists" is built around that gap.

In a clinical setting, how well you communicate can matter as much as how well you know the physics. This workshop looks at ways to cut through jargon and get your point across clearly, whether you're reassuring a nervous patient about a treatment plan or making the case to a hospital board for new equipment.

Sustainability practices

Sustainability has become a real part of how healthcare operates, not just a talking point. A dedicated scientific session on "Sustainable practices in healthcare" reflects that shift.

It's aimed at young physicists who want to help push their departments toward greener practices : cutting waste, using energy more efficiently, and building sustainable habits into everyday protocols.

Navigating the Professional Landscape

Regulations and professional standards in medical physics don't stay still for long, and the Early Career track tackles some of that.

One session looks at how the EU Medical Device Regulation affects in-house software development, which matters more each year as hospitals build their own digital tools. Another addresses how Medical Physics Experts are recognized across different European countries, which is worth understanding if you're thinking about where your career could take you. Together, these sessions give a clearer picture of where the profession is headed and how to plan around it.

Mark your calendars: SIG meeting and social events

A few dates are worth putting in your calendar. On the afternoon of **24 September at 16:00 in Room 8**, the Early Career SIG will hold its meeting, a good opportunity to get involved, pitch ideas for future initiatives, and meet the people running the Early Career program. Anyone interested in contributing is welcome.

Later that evening, the group will also be at the congress's social event, "Paella by the Sea." It's a chance to relax by the Valencia coast and keep the conversations from the day going in a more casual setting. Look out for the Early Career group there!

Stay connected and join us!

For last-minute updates, room changes, or impromptu meetups, join the official Early Career WhatsApp channel. It's the quickest way to get real-time announcements during the congress, and it's also useful for coordinating with other attendees before and during the event.

The ECMP 2026 Early Career track is a chance to be part of a community that's actually looking out for people starting out in the field. If you want to build your skills, find a mentor, or just meet people in a similar position, Valencia is where to be this September.



Matteo Galetto is a medical physicist at the Fondazione Policlinico Universitario Agostino Gemelli IRCCS in Roma. He works in the radiotherapy department, with a special focus on MR-guided adaptive radiotherapy. He is the convenor of the EFOMP early career special interest group



Virginia Piva is a medical physicist at the Oncological Institute of Veneto (IOV). Her main professional interests are advances in radiotherapy and implementation of AI techniques in the clinic. She is Secretary of the EFOMP Early Career SIG and External Relations Officer of the Young Cancer Professionals of the European Cancer Organization.



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Air Kerma Assessment under Automatic Exposure Control: Does the Measurement Setup Matter?

Quality control in diagnostic radiology is built on standards. We follow international guidelines, compare our measurements with suspension levels and decide whether an imaging system performs as expected. But what happens when two medical physicists, following different yet accepted methodologies, obtain different results from the very same X-ray system?

This question emerged during routine quality control testing of Automatic Exposure Control (AEC) in digital radiography. Air kerma measurements are a standard part of acceptance and constancy testing, and the European Commission's Radiation Protection Report 162 (RP162) provides a suspension level of 10 µGy for receptor air kerma. The procedure seems straightforward. However, the measurement methodology varies considerably between hospitals, manufacturers and service engineers.

Some professionals use copper or aluminium filters positioned at the X-ray tube exit, while others prefer PMMA slabs because they reproduce clinical conditions and allow several quality control tests to be performed in a single experimental setup. Both approaches are routinely used. Both appear reasonable. But are they really measuring the same quantity?

Rather than assuming they were, we decided to test it.

Using two digital radiography systems from different manufacturers, we compared several experimental configurations commonly encountered in clinical practice (Figure 1). Air kerma was measured with a calibrated RaySafe X2 detector using copper, aluminium and PMMA attenuation. Measurements were repeated with and without the anti-scatter grid and, more importantly, with the detector positioned either on the patient table or directly at the image receptor.

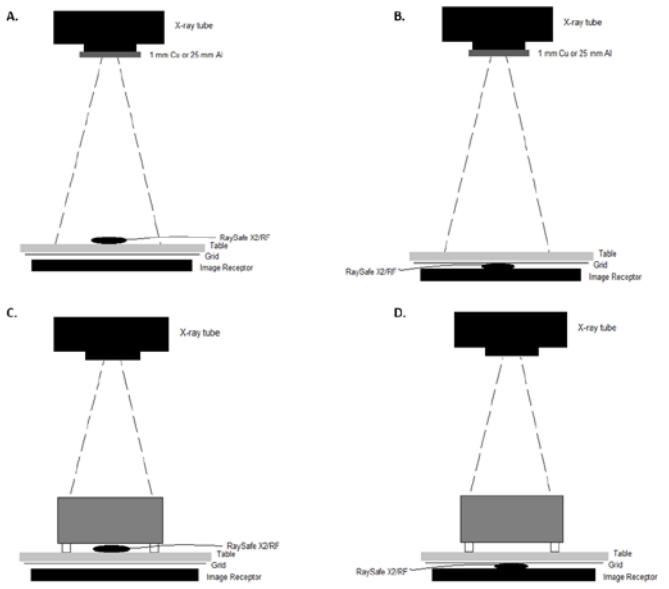


Figure 1. Experimental setups used for air kerma measurements under different conditions: A) 1 mm Cu or 25 mm Al, dosimeter on the table, with anti-scatter grid; B) 1 mm Cu or 25 mm Al, dosimeter on the image receptor, with anti-scatter grid. C) 20 cm PMMA, dosimeter on the table, with anti-scatter grid. D) 20 cm PMMA, dosimeter on the image receptor, with anti-scatter grid. All configurations were repeated without the anti-scatter grid.

What initially appeared to be a simple comparison quickly became much more interesting.

The measured air kerma depended strongly on where the detector was placed (Figure 2). When positioned on the patient table, values were consistently higher, particularly when the anti-scatter grid was present. The AEC compensated for grid attenuation by increasing tube output to maintain detector exposure. In several PMMA configurations, the measured air kerma even exceeded the RP162 suspension level.

Attenuation set-up	Air Kerma (mGy) measured in patient table			
	Shimadzu Radspeed Pro		Fujifilm DR-XD600	
	Grid	No grid	Grid	No grid
1 mm Cu (Fig.1A)	7,82	3,52	6,96	4,39
25 mm Al (Fig.1A)	8,01	3,61	6,57	3,93
20 cm PMMA (Fig.1C)	31,53	3,68	23,13	4,14
Attenuation set-up	**Air Kerma (mGy) measured in image receptor**			
	Shimadzu Radspeed Pro		Fujifilm DR-XD600	
	Grid	No grid	Grid	No grid
1 mm Cu (Fig.1B)	0,04	0,06	3,49	3,41
25 mm Al (Fig.1B)	0,12	0,15	3,39	3,37
20 cm PMMA (Fig.1D)	0,22	0,39	3,07	2,73

Figure 2. Air-kerma measurements under AEC for different attenuation setups and anti-scatter grid configurations, obtained on the patient table and at the image receptor in two digital radiography systems.

However, when exactly the same exposures were measured at the image receptor, the picture changed completely. Air kerma values remained below the suspension level regardless of whether copper, aluminium or PMMA was used. Detector position had a far greater influence than the attenuation material.

The findings led us back to a deceptively simple question: what exactly does the RP162 suspension level refer to?

The answer lies in the definition itself. The recommended suspension level corresponds to air kerma at the entrance of the image receptor, not at the patient's exit surface. Once this distinction is recognised, many apparently conflicting results become easier to understand. Measurements performed on the patient table are not directly comparable with the RP162 reference value, even if they are perfectly valid for monitoring the stability of a given system over time.

This distinction has practical consequences. Medical physicists may conclude that an AEC system exceeds the recommended suspension level simply because a different measurement geometry was used. Results from acceptance testing may therefore not be directly comparable with hospital quality control measurements.

The study also highlighted a practical reality familiar to many departments. On some digital radiography systems, accessing the image receptor is technically difficult or even impossible without risking damage to the detector. In these cases, alternative methodologies are often the only realistic option. The key is not necessarily to make every department use the same setup, but to understand what is being measured, interpret the results accordingly and maintain consistency throughout the quality assurance programme.

Sometimes the most valuable outcome of a quality control study is not discovering that a system is out of tolerance. It is realising that the methodology itself influences the answer.



Margarida Freitas holds a Master's degree in Medical Physics and is currently a second-year resident in Diagnostic and Interventional Radiology at the Local Health Unit of São João.

Working as an MPE in Germany

Interview series on the path to MPE and work in different countries



GENERAL INFO

Number of MPE in country: ~2.400 MPE
Name of National Member Organisation (NMO): Deutsche Gesellschaft für Medizinische Physik (DGMP)
Link to website: https://dgmp.de/
Number of Members in NMO: 1,900
"Medical Physicist" in the national language(s): Medizinphysik-Experte/Expertin (MPE)

BECOMING MPE

What are the entry requirements to become a trainee for MPE status?
To start the training towards becoming a Medical Physics Expert (MPE) in Germany, candidates must usually hold a university degree in a scientific or technical discipline (typically physics or medical physics). The qualification level must correspond to a Master's degree in medical physics or an equivalent qualification. In Germany training is called "Sachkundezeit".

How would a student proceed to find training positions in your country?
Training positions are typically offered by hospitals, university medical centres, or large radiotherapy or nuclear medicine departments or clinics for diagnostic radiology.
Students usually find such positions through:

- job advertisements from hospitals and university clinics
- job portal on the website of DGMP
- academic networks and university medical physics programmes
- general scientific or clinical job portals

Can you describe the training period?
The practical training period ("Sachkundezeit") consists of supervised clinical work under the guidance of an experienced MPE.
During this time, the trainee gains structured experience in clinical medical physics tasks such as:

- quality assurance of medical radiation equipment
- treatment planning support and dosimetry
- radiation protection
- participation in clinical procedures involving ionising radiation

The trainee must document their activities and competencies during the training period according to national guidelines. Details about the training period can be found in the German Richtlinienmodul: Erforderliche Fachkunden im Strahlenschutz für Medizinphysik-Experten (MPE) of the federal government.

In addition to practical training, participation in recognised radiation protection courses (basic and specialised courses) is required.

Duration of practical experience required before obtaining MPE status:
The required duration of practical training depends on the field of application:
- Radiation therapy: typically at least 18 months
- Nuclear medicine: typically at least 12 months
- Diagnostic radiology (X-ray): typically at least 12 months

Additional fields can be obtained with further practical training periods.

Is there an additional exam to become an MPE?
The competent authority reviews the submitted documentation (education, courses, and practical training).
If the authority cannot clearly determine whether all requirements are fulfilled, it may conduct a professional interview ("Fachgespräch") with experienced MPEs to assess the candidate's knowledge.

WORK AS MPE

In which fields do MPE work and in approximately which proportions?
Medical Physics Experts in Germany primarily work in:
- Radiation therapy
- Diagnostic radiology
- Nuclear medicine

Radiation therapy is generally the largest employment field because of regulatory requirements for medical physics expertise in radiotherapy departments.

MPEs are responsible for tasks such as:
- radiation protection
- quality assurance and commissioning of equipment
- patient dosimetry and treatment planning
- optimisation of imaging and therapy procedures

What is required in terms of continuous professional development while working as MPE?
The certification of expertise in radiation protection must be updated at least every five years through recognised training or continuing education courses.

In addition, many MPE participate in professional development activities organised by the DGMP or academic institutions.

Which role does research play for MPE in Germany?
Research plays an important role, especially in university hospitals and research institutes.
Typical areas of research include:
- development of new imaging and therapy techniques
- advanced dosimetry and treatment planning methods
- optimisation of radiation protection and imaging protocols

However, in many clinical positions the main focus remains on clinical service and quality assurance.

INTERNATIONAL MOBILITY

Which steps would be necessary for MPE from another European country to obtain MPE status in your country?
An MPE trained in another European country would need to:
1. Submit documentation of education and professional training.
2. Demonstrate that their qualifications correspond to the German MPE-requirements.
3. Apply to the competent regional authority responsible for radiation protection.
4. Possibly complete additional training or a professional interview if the equivalence of qualifications cannot be fully established.

Recognition is generally assessed on a case-by-case basis.

Which language skills are required for MPE work?
In practice, German language skills are required, because clinical communication, regulatory documentation, and radiation protection procedures are performed in German.

A professional level of German (often around B2–C1) is typically necessary to work effectively in clinical environments.

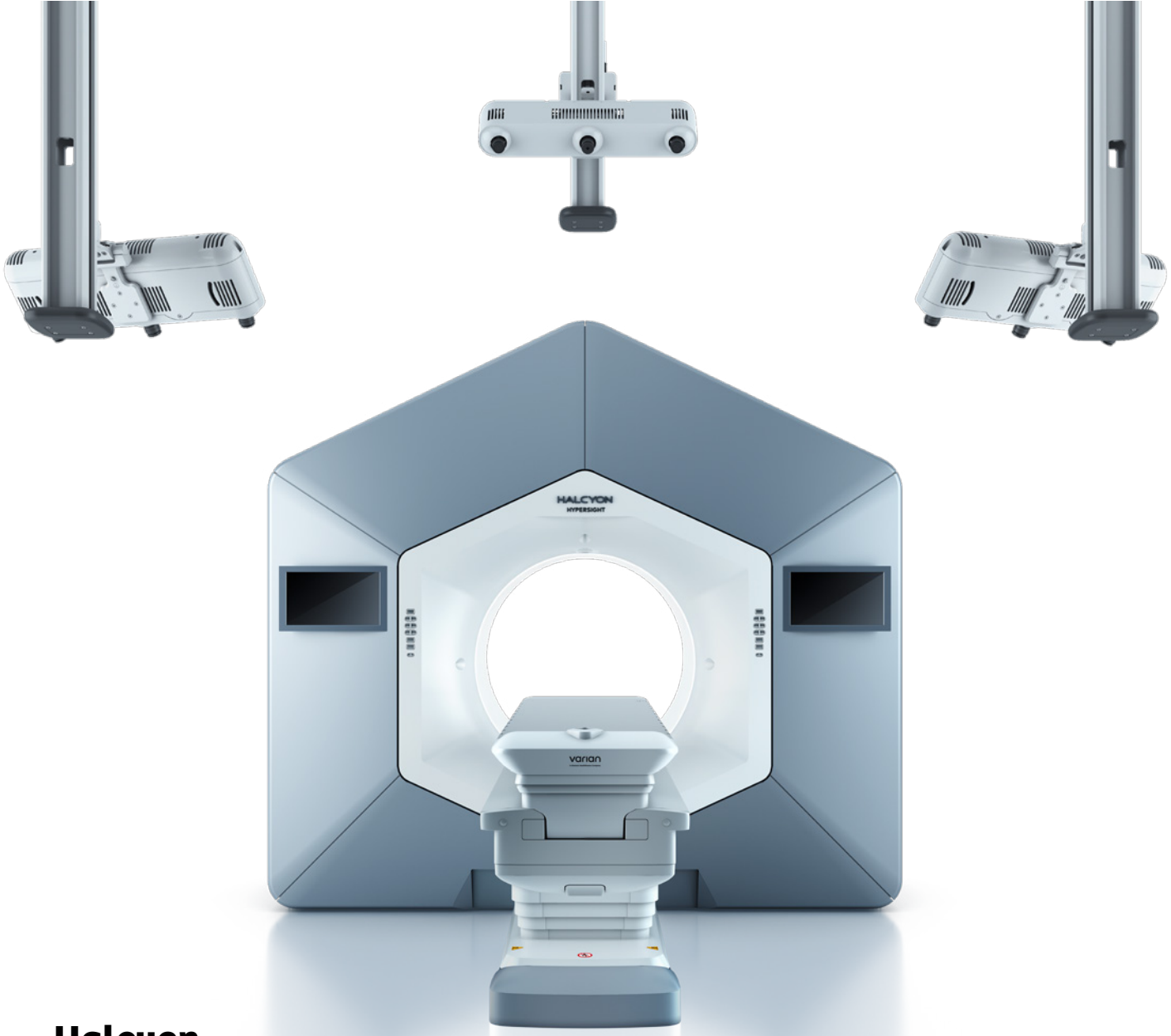
OTHERS

Is there anything worth mentioning about being an MPE in your country, something you believe is different from other countries or anything interesting to add for our international readers?
Medical Physics Experts in Germany have a clearly defined legal role within the radiation protection framework of the Radiation Protection Act and related regulations.

In many areas of medical radiation use—especially radiotherapy and certain diagnostic procedures—the involvement of an MPE is required by law, which makes the profession a key component of radiation safety and quality assurance in clinical practice.



Dr. Erik Gührs is the Head of the DGMP office in Berlin since 2017.



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Not available for sale in all markets. PerfectKinetix Dynamic Couch, HyperSight, and IDENTIFY Connect are optional features. Please contact your local Siemens Healthineers organization for further details.
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SIEMENS Healthineers

The Physics and Technology of Radiation Therapy (3rd edition)

Patrick N. McDermott and Colin G. Orton, Medical Physics Publishing, 2025 – A Review

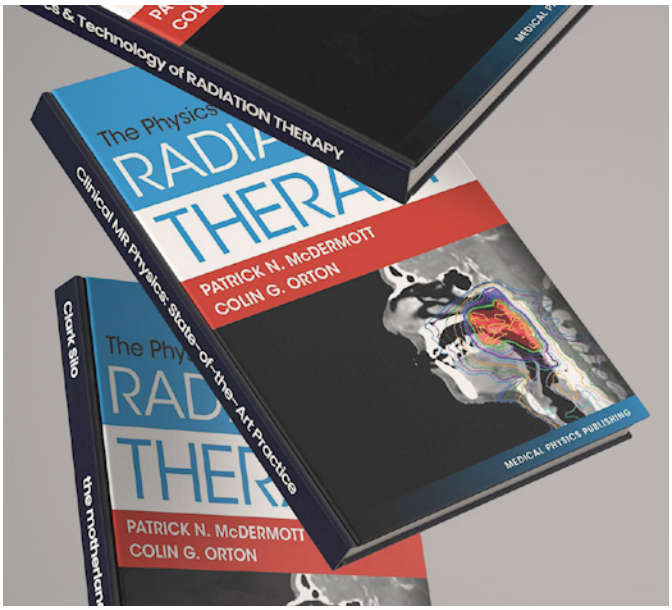


Figure 1. The Physic & Technology of Radiation Therapy, 3rd Edition By: Patrick N. McDermott and Colin G. Orton, List Price: $185.00, ISBN: Hardcover 978-0-944838-31-0, eBook 978-0-944838-37-2, Page count: 888

Now in its third edition, The Physics and Technology of Radiation Therapy remains a well-established educational text in radiation oncology physics. The book is primarily aimed at medical physics trainees, as well as radiation therapists and medical dosimetrists. It presents technically accurate material at a mathematical level that is also appropriate for members of the radiation therapy team who require a clinically relevant foundation rather than an encyclopaedic overview. In this respect, the book occupies a niche between introductory teaching texts and more comprehensive physics references.

The first half of the book covers the radiation physics necessary for understanding radiation therapy. The second half covers the applied physics and technology of radiation therapy.

Developed as a course for medical residents in radiation oncology, the book's primary strength lies in the clarity and its pedagogical approach. While reflecting state-of-the-art technology and practice, it is primarily a book 'to learn from'. This is evident in the continued use of end-of-chapter problem sets and the book's design as a structured teaching resource rather than a passive reference work. For trainees preparing for certification or structured coursework, this emphasis is one of the book’s most attractive features.

The book's content is closely aligned with contemporary radiation oncology, covering topics such as MR linacs, carbon ion therapy, convolution/superposition dose calculations, and peripheral dose.

This broad and contemporary scope is especially important in the current educational environment. Recent radiotherapy texts increasingly incorporate image guidance, adaptive radiotherapy, advanced treatment delivery platforms, modern planning algorithms, and newer particle modalities. This reflects the fact that these topics are no longer peripheral to specialist practice. By explicitly addressing MR-guided therapy, carbon ion therapy, and modern dose-calculation methods, McDermott and Orton’s textbook establishes itself as a relevant teaching resource for programs where trainees must understand not only conventional external beam therapy but also the conceptual basis of rapidly evolving delivery systems.

However, this text is not intended for graduate medical physics students seeking exhaustive derivations or practicing physicists looking for a specialized reference. Instead, it is designed for readers who require a solid, clinically grounded understanding of therapy physics, with enough mathematical and physical detail to support safe practice, examination preparation, and interdisciplinary communication. This makes it appropriate for medical physicists in training, as well as therapists, dosimetrists, and residents.

The book's limitations stem from the broad audience it seeks to satisfy. Readers seeking detailed treatments of advanced cavity theory, Monte Carlo methods, highly specialized optimization strategies, or deep particle therapy physics will still need to consult more specialized works. However, this is not a serious criticism of a text whose main value lies in its accessibility, relevance, and educational coherence. A book written for the radiation therapy team should be judged by how effectively it teaches the fundamentals and connects them to contemporary practice. By that standard, this textbook performs strongly.

This third edition of The Physics and Technology of Radiation Therapy should serve as an effective primary teaching text and practical review resource for medical physicists, radiation therapists, dosimetrists, and radiation oncology residents. For medical physics residents and practicing physicists, it will likely be most useful as a concise overview and pedagogical refresher rather than a definitive technical reference.



Professor **Dr. Kay-Uwe Kasch** teaches medical physics and related courses at the Berliner Hochschule für Technik (BHT), one of largest state universities of applied sciences in Germany.

DIAGNOMATIC



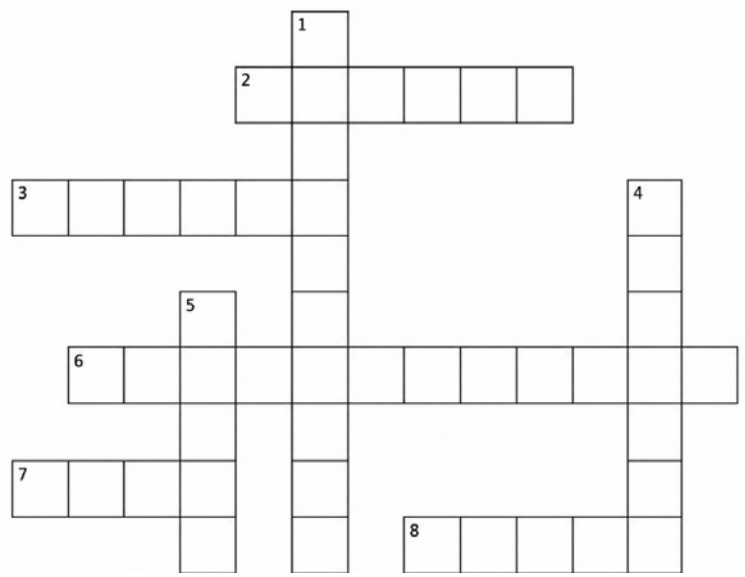
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Quizzes

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Crossword

ACROSS

2. Gas used to cool the superconducting magnet in an MRI scanner
3. The eye's most vulnerable structure for visible and near-infrared lasers
6. MRI technique for measuring metabolites
7. MRI component used to transmit or receive radiofrequency signals
8. MRI sequence commonly used to suppress signals from flowing blood or cerebrospinal fluid

DOWN

1. Time taken for excited MRI nuclei to return to equilibrium
4. Ultrasound technique used to measure blood flow
5. Unit used to measure magnetic field strength

Codebreaker

Wavelength (nm) of the Nd:YAG laser

□□1□

The first successful full-body MRI scan on a living human was performed in the year

□2□□

Speed of sound assumed in soft tissue

□3□□

Laser safety classification with the highest hazard

4

Number of Tesla in an ultra-high-field MRI scanner

5□.□

$$\square_1^2 + (\square_2 - \square_3) - (\square_4 - \square_5) = \square\square$$

Hint: Current number of EFOMP National Member Organisations

What's Wrong With This Picture?



Solutions

What's wrong with this picture?

1. Patient wearing a watch
2. Keys on the table
3. Standard oxygen cylinder inside the MRI room
4. Staff wearing a stethoscope
5. No patient hearing protection

SOLUTIONS

Crossword **Codebreaker**

1. Relaxation — Wavelength (nm) of the Nd:YAG laser *1064*
2. Helium — The first successful full-body MRI scan on a living human was performed in the year *1977*
3. Retina — Speed of sound assumed in soft tissue *1540 m/s*
4. Doppler — Laser safety classification with the highest hazard class *4*
5. Tesla — Number of Tesla in an ultra-high-field MRI scanner *11.7*
6. Spectroscopy
7. Coil
8. FLAIR



Inga Andriulevičiūtė is a Medical Physicist at Vilnius University Hospital Santaros Klinikos and a PhD student at Vilnius University. Her doctoral research focuses on the impact of new radiological techniques on occupational radiation exposure.

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Advancing Synthetic CT in Radiotherapy: Insights From the SynthRAD2025 Grand Challenge



Figure 1. The SynthRAD2025 Grand Challenge, in which participants were requested to develop and submit synthetic CT generation methods for comprehensive evaluation, using either MRI or CBCT data from head-and-neck, thoracic, and abdominal patients undergoing radiotherapy

At the ESTRO 2026 congress, a prominent highlight was the "Best Physics Paper" awarded to the multi-institutional team behind the SynthRAD2025 Grand Challenge. Their presentation, titled *"Benchmarking synthetic computed tomography for radiotherapy from head to abdomen: SynthRAD2025 Grand Challenge"*, outlined critical advancements in artificial intelligence and its direct, transformative application to synthetic CT (sCT) generation.

Historically, acquiring conventional CTs for dose calculation exposes patients to ionizing radiation, offers limited soft-tissue contrast, and introduces registration uncertainties when images are aligned with MRI or CBCT. Generating sCT directly from MRI or CBCT overcomes these limitations, enabling seamless MRI-only and CBCT-based adaptive workflows. Building upon its 2023 predecessor, SynthRAD2025 pushed the field's boundaries by tackling significantly more complex regions: head & neck, thorax, and abdomen. These sites are notoriously challenging to model due to respiratory motion, intricate geometries, and high inter-patient variability.

Presented onsite by Matteo Maspero (UMC Utrecht) on behalf of the ten organizers, the challenge utilized a massive dataset of 2,362 patients curated from five European medical centers. The benchmark was split into two tasks. Task 1 focused on MRI-to-CT conversion (890 cases) to facilitate MRI-guided treatments. Meanwhile, Task 2 targeted CBCT-to-CT conversion (1,472 cases) to support the growing need for rapid, daily adaptive radiotherapy workflows.

The challenge attracted strong international participation, with 803 users testing various deep learning models. While the overall performance among the participating teams was large, the top-ranking submissions were remarkably close to one another. Notably, Task 2 (CBCT-to-CT) achieved better overall performance than Task 1 (MRI-to-CT), especially in the head & neck anatomy. Despite these task variations, the sCTs generated by the top teams across all three anatomies proved clinically acceptable for photon treatment planning.

The presenters also demonstrated that while state-of-the-art models produced visually excellent sCTs—scoring highly on traditional image similarity metrics like SSIM—these metrics showed only a moderate correlation with actual dosimetric accuracy. This insight underscores a paradigm shift: image quality alone is an insufficient surrogate for treatment safety. Comprehensive dosimetric evaluation is strictly necessary before clinical translation. Finally, architectural trends for these deep learning models were highlighted.

The SynthRAD2025 dataset and challenge framework will remain open, ensuring that future algorithms can be benchmarked consistently up to 2030. The platform and comprehensive results can be accessed online, and the full report is available as a preprint (Viktor Rogowski et al. 2026, arXiv:2605.13555).



Figure 2. SynthRAD2025 + DLinRT.eu + COBRA2026 Grand Challenge merged to become the clan Overfitting Fjords for one night. Organizers of different initiatives channeling their inner Vikings in Stockholm to celebrate the success of SynthRAD2025. Because nothing fosters academic collaboration quite like tasting mead over dinner.



Matteo Maspero is an assistant professor and medical physicist at UMC Utrecht, The Netherlands investigating adaptive Radiotherapy through automatic segmentation, speeding-up image acquisition/reconstruction and synthesis with the aid of deep learning.

Breast Cancer Treatment Today: An Upcoming EFOMP-Endorsed Webinar on Innovation and Multidisciplinary Care



Breast cancer remains the most frequently diagnosed cancer among women worldwide and continues to represent a major healthcare challenge. Advances in imaging, surgery, radiation oncology and systemic therapies are rapidly transforming clinical practice, creating an increasing need for multidisciplinary collaboration and continuous professional education. To support healthcare professionals across the breast cancer pathway, Affidea has developed the **Breast Care Update Programme**, a two-part educational initiative focused on innovation, evidence-based practice and multidisciplinary care.

The programme combines complementary perspectives on breast cancer management, covering both diagnosis and treatment. The first educational session,**"Breast MRI and Beyond: Challenges and New Directions in Imaging"**, will be available on demand from 8 October 2026. Dedicated to contemporary breast imaging, the webinar explores developments in breast MRI and emerging imaging technologies that support accurate diagnosis, treatment planning and personalised patient care. The session aims to provide practical insights into how imaging supports precision medicine and improved clinical decision-making across the breast cancer pathway.

Building on this diagnostic perspective, the second webinar,**"Breast Cancer Treatment Today: Evidence, Innovation, and Multidisciplinary Practice"**, will take place live on 15 October 2026. The event has been intentionally scheduled during **Breast Cancer Awareness Month** and on **Breast Health Day**, an initiative promoted by Europa Donna to raise awareness of breast health and improve outcomes for individuals affected by breast cancer.

The live webinar will explore key topics shaping contemporary breast cancer treatment, including breast centres of excellence, multidisciplinary decision-making, surgical approaches, lymph node irradiation and the interaction between radiotherapy and breast reconstruction. An interactive discussion will provide participants with the opportunity to engage directly with the faculty and exchange experiences across specialties.

The Multidisciplinary Breast Cancer Team

Successful breast cancer care relies on a highly coordinated multidisciplinary team that supports patients throughout the entire care pathway, from screening and diagnosis to treatment, survivorship and follow-up. This team typically includes radiologists, breast surgeons, pathologists, medical oncologists, radiation oncologists, medical physics and radiation protection experts, specialist breast care nurses, radiographers, psychologists, genetic counsellors and allied health professionals. Each discipline contributes unique expertise to treatment planning and clinical decision-making, ensuring that care is personalised, evidence-based and aligned with patients' needs and preferences. Multidisciplinary collaboration has become a cornerstone of modern breast cancer management, enabling more accurate diagnoses, optimised treatment strategies, improved patient experience and ultimately better clinical outcomes.

Faculty

The Breast Care Update Programme brings together an international multidisciplinary faculty with recognised expertise in breast imaging, surgery, radiation oncology, medical physics and clinical leadership:

- **Alessandro Roncacci** – Senior Vice President and Chief Medical Officer, Affidea Group.
- **Christoph Tausch** – Breast Surgeon and Associate Professor, Head of the Breast Centre, Brust-Zentrum Zürich, Switzerland.
- **Jana de Boniface** – Breast Surgeon and Professor of Surgery, Karolinska Institutet and Capio Saint Göran Hospital, Stockholm, Sweden.
- **Orit Kaidar-Person** – Radiation Oncologist and Director of the Breast Cancer Service, Sheba Medical Center, Israel.
- **Philip Poortmans** – Radiation Oncologist, Associate Professor and Medical Advisor, Affidea Group.
- **Rosana Santos** – Radiologist, Clinical Education Scientific Leader, Affidea Group.
- **Chryssa Paraskevopoulou** – Medical Physics and Radiation Protection Expert, Dose Management & Radiation Protection Manager, Affidea Group.

Multidisciplinary collaboration is central to modern breast cancer care. By bringing together experts in imaging, surgery, radiation oncology and medical physics, the programme fosters knowledge exchange and supports the delivery of high-quality, patient-centred care.

Affidea is particularly honoured that the live webinar has received the endorsement of the **European Federation of Organisations for Medical Physics (EFOMP)**. This endorsement recognises the scientific quality and educational value of the initiative and highlights the important contribution of medical physicists to breast imaging, optimisation, radiation safety, quality assurance and advanced radiotherapy techniques throughout the breast cancer pathway. It also reflects the shared commitment of Affidea and EFOMP to professional education, innovation and excellence in patient care.

Programme at a Glance

Part II: Breast Cancer Treatment Today: Evidence, Innovation, and Multidisciplinary Practice

Available on demand from **8 October 2026.**

Part II: Breast Cancer Treatment Today: Evidence, Innovation, and Multidisciplinary Practice
15 October 2026.

- The Importance and Workflow of a Breast Centre of Excellence – **Prof. Christoph Tausch**
- Breast-Conserving Treatment versus Mastectomy – **Prof. Jana de Boniface**
- Lymph Node Irradiation after ESTRO 2026 – **Prof. Philip Poortmans**
- Radiotherapy and Breast Reconstruction – **Prof. Orit Kaidar-Person**
- Interactive Faculty Discussion and Q&A Session

Use the link or scan the QR code to register.





Chryssa Paraskevopoulou, MSc, PhD is a Medical Physics and Radiation Protection Expert, Dose Management & Radiation Protection Manager, Affidea Group. She leads international initiatives in radiation protection, dose optimisation, contrast media and tracer management, value-based healthcare, sustainability, and clinical quality improvement across Affidea's European network.



Rosana Santos is a Radiologist and Clinical Education Scientific Leader at Affidea Group. She serves as President of the College of Radiology at the Portuguese Medical Association and Portuguese Deputy for Radiology at UEMS. Her interests include thoracic imaging, medical education, quality improvement, and multidisciplinary clinical practice.



Inês Ferreira is a Clinical Education Projects Coordinator at Affidea Portugal, supporting the development and delivery of international educational initiatives and scientific events across the Affidea Group.

Learning to Think Like a Smart Shielder



Figure 1. Group photo of participants and lecturers during the hands-on sessions at the Local Health Unit of São João.

From 6 March to 16 May 2026, the Portuguese Association of Medical Physicists (apFisMed), with EFOMP endorsement, organised the Shielding of Medical Installations and Facilities course. Over ten weeks, participants explored shielding principles across Radiology, Nuclear Medicine and Radiotherapy through online lectures, trainee presentations, quizzes and hands-on sessions, while also discussing emerging topics such as computational methods, Monte Carlo simulations and artificial intelligence.

Rather than focusing on a single specialty, the course encouraged participants to understand the similarities and differences between shielding approaches across the three main areas of medical physics. This multidisciplinary perspective was one of the programme's greatest strengths.

For Inês Morais, an Early Career Medical Physicist working in Radiology, the course offered an opportunity not only to strengthen her knowledge in her own field but also to explore areas that she rarely encounters in everyday clinical practice.

"I had a particular interest in learning about shielding calculations in Nuclear Medicine, as I recently had the opportunity to contribute to a multidisciplinary project where this knowledge could be valuable."

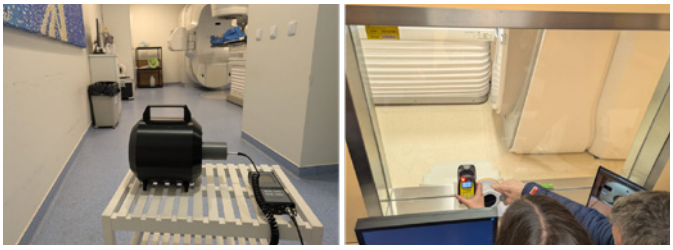


Figure 2. Experimental setup used during the practical sessions. Left: neutron survey meter used for radiation measurements in a radiotherapy facility. Right: Geiger–Müller survey meters used to measure ambient dose equivalent rate during shielding verification of a gamma camera room, simulating a routine clinical examination.

One aspect that stood out was discovering that, although the underlying physics is shared, each specialty presents its own practical challenges.

"Although the calculation principles are common, each specialty has its own particularities and specific challenges."

Beyond the scientific programme, participants particularly valued the opportunity to exchange experiences with colleagues from different institutions and professional backgrounds.

"The discussions and sharing of practical cases made the course even more enriching."

These interactions complemented the lectures and helped transform theoretical concepts into practical knowledge that participants could apply in their own departments.

The course also demonstrated that shielding education remains relevant well beyond the first years of professional practice. Maria Rodrigues, an experienced Medical Physicist in Radiotherapy,

enrolled with the aim of updating and broadening her knowledge in radiation protection.

"The course allowed me to consolidate concepts that are already part of my daily practice, while also discovering new methodologies and tools applied to shielding and radiation protection."

Among the topics that particularly caught her attention were computational methods and artificial intelligence, not as replacements for the medical physicist, but as valuable tools to support decision-making and optimise shielding assessments.

For Maria, however, the most important message of the course went beyond technology.

"More than applying formulas and performing calculations, it is essential to interpret the results, question whether they make sense and understand whether they truly reflect the reality of the facility and clinical practice."

She also believes that courses like this remain valuable regardless of professional experience.
"Experience allows us to relate the course content to real situations we have encountered throughout our careers and to critically reflect on our own practice."

The programme concluded with practical sessions in Radiology, Radiotherapy and Nuclear Medicine departments, where participants had the opportunity to perform shielding verification measurements and discuss real clinical scenarios with experienced medical physicists. These sessions reinforced one of the main messages of the course: effective shielding is achieved not only through calculations but also through experience, collaboration and critical thinking.

Whether at the beginning of a career or after many years of professional practice, participants shared a common conclusion: continuous education in shielding is essential to keep pace with technological advances, strengthen multidisciplinary collaboration and ultimately contribute to safer healthcare environments.



Inês Morais holds a Master's degree in Biomedical Engineering and has six years of experience in radiation protection and medical physics. She currently works in diagnostic medical imaging at Luz Saúde Group, focusing on radiation protection and medical physics.



Maria Rodrigues is a Medical Physicist at Júlio Teixeira S.A., part of Stingray Healthcare Group. She works in the Radiotherapy Department at the Local Health Unit of Braga, where she also serves as Radiation Protection Officer.



Rita Albergueiro is a Medical Physics resident specializing in Nuclear Medicine at the Local Health Unit of São João. She holds a master's in medical physics and collaborates with the IPO Porto Research Centre in projects on Medical Physics, Radiobiology, and Radiation Protection. She joined EFOMP's C&P Committee in 2025.

MRO.ART
36° Residential Course: Decision Making in Modern Oncology: From Research Through Evidence to Practice

Modern oncology is characterised by an increasing need for precise, evidence-based decision-making in a wide range of clinical scenarios. The rapid expansion of scientific knowledge and continuous development of innovative therapeutic strategies means that clinicians must rely on structured, research-based frameworks supported by expert interpretation.

The MRO.ART 36° course has been specifically designed to provide participants with a comprehensive, evidence-based framework for clinical decision-making, enriched by expert insights and real-world experience. By integrating the latest research findings with practical clinical perspectives, the course aims to help clinicians translate evidence into optimal treatment choices.

The programme will focus on four major disease sites — lung, prostate, rectal and cervical cancers — which have seen significant evolution in management in recent years, making them highly relevant clinically. Through a combination of lectures, interactive discussions and case-based sessions, participants will learn to navigate complex therapeutic pathways, evaluate the available evidence and apply it effectively in their daily practice.

The course fosters a multidisciplinary, interactive learning environment to enhance critical thinking, refine decision-making processes, and improve patient-centred care in modern oncology.

Venue and dates:

18 October 2026
Isola Tiberina Hospital – Gemelli Isola, Aula Magna, Via di Ponte Quattro Capi, 39, 00186 Rome, Italy

19 October 2026
Fondazione Policlinico Universitario A. Gemelli IRCCS, Sala Brasca (4th floor), Largo Agostino Gemelli 8, 00168 Rome, Italy



Lorenzo Placidi, PhD, is a Senior Medical Physicist at Fondazione Policlinico Universitario A. Gemelli IRCCS in Rome, where he serves as Head of the Medical Physics Unit in MRI-Guided Radiotherapy. His clinical and research activity focuses on MRI-guided radiotherapy, online adaptive workflows, quantitative MRI, artificial intelligence applications in treatment planning and image guidance, and dose painting strategies. He obtained a PhD in Oncological Sciences, with previous professional experience at the Center for Proton Radiation Therapy, Paul Scherrer Institut, Switzerland. He is actively involved in national and international scientific networks, including ESTRO, EPTN and AIFM. He is PI of the national AIRC “My First AIRC Grant” project on quantitative MRI for prostate online adaptive dose painting MRgRT.

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AULA BRASCA (4TH FLOOR)
LARGO AGOSTINO GEMELLI, 8 - 00168 ROME



SCIENTIFIC COORDINATORS : M.A. GAMBACORTA, F. MICCICHÈ, L. TAGLIAFERRI
HONORARY PRESIDENTS: A.G. MORGANTI, V. VALENTINI

Endorsements required:

Endorsed by ESTRO

AIRO Associazione Italiana Radioterapia e Oncologia clinica
LA CURA DI PRECISIONE

AIOM Associazione Italiana Oncologia Medica

EFOMP European Federation of Organisations for Medical Physics

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AITRO

A.I.R.O.

Shaping the Future of Medical Physics and Clinical Engineering at STEF 2026



Figure 1. STEF 2026 brings together medical physicists, clinical engineers and healthcare scientists to explore innovation, leadership and the future of healthcare.

The healthcare landscape is changing rapidly, presenting new opportunities and challenges for medical physicists, clinical engineers and healthcare scientists. STEF 2026, the Science, Technology and Engineering Forum organised by the Institute of Physics and Engineering in Medicine (IPEM), will bring together professionals from across Europe and beyond to explore how our professions can lead change, drive innovation and improve patient care.

Taking place on 12-13 October 2026, STEF 2026 will provide an engaging programme focused on the future of healthcare science, with contributions from leaders in medical physics, clinical engineering, research, industry and healthcare delivery.

The conference opens with a keynote on Leadership in Healthcare Science: Courage and Compassion, setting the scene for discussions on the evolving role of scientific and engineering professionals within modern healthcare systems. Delegates will then explore key themes including the Future of Medical Physics and Engineering, Research and Innovation, Workforce Transforma-

tion, Applied Radiotherapy, Engineering Systems and Design, Safety and Governance, and Leadership and Workplace Culture.

STEF is designed to go beyond technical developments. Sessions will examine how healthcare science can respond to workforce pressures, embrace new technologies, support sustainability and strengthen its influence within healthcare decision-making. Delegates will have opportunities to learn from expert speakers, engage in discussion, share experiences and build valuable professional networks.

A highlight of the programme will be the closing panel discussion, Medical Physics and Clinical Engineering 2035: Reimagining Science, Technology and Healthcare, which will look beyond today's operational challenges and consider the strategic leadership, innovation and system design required for the next decade.

Alongside the scientific programme, attendees will be able to meet industry partners, discover emerging technologies and continue conversations during dedicated networking opportunities, including the conference dinner.

Whether you are an experienced professional, researcher, trainee or emerging leader, STEF 2026 offers a unique opportunity to gain new perspectives, make meaningful connections and contribute to the future direction of our profession.

Join colleagues from across the healthcare science community and be part of the conversation shaping the future of medical physics and clinical engineering. Book your place today and help define what comes next for our profession.

For further information and registration, visit: https://ipem.eventsair.com/stef26/



Sian Brown is Events and Conferences Manager at the Institute of Physics and Engineering in Medicine (IPEM). She leads the delivery of national and international conferences that support professional development, knowledge exchange and collaboration across medical physics, clinical engineering and healthcare science communities

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Upcoming Conferences and Educational Activities

This list was correct at the time of going to press.
For a complete, up-to-date list, please visit our **EVENTS WEB PAGE**



Aug 24th, 2026 - Oct 2nd, 2026
7th Summer School in Medical Physics 2026
Heidelberg, Germany or Online

Sep 10th, 2026 - Sep 12th, 2026
Time To Adapt - Adaptive school for medical physicists
Sardinia, Italy

Sep 16th, 2026 - Sep 19th, 2026
57. Jahrestagung der Deutschen Gesellschaft für Medizinische Physik
Bamberg, Germany

Sep 23rd, 2026
EFOMP School on Physics, Technology and Biology in Clinical Proton and Ion Beam Therapy
Valencia, Spain

Sep 23rd, 2026
EFOMP School on Diagnostic and Therapeutic Ultrasound: Physics, Techniques and Clinical Applications
Valencia, Spain

Sep 23rd, 2026
EFOMP School on Auto Contouring methods for Radiotherapy
Valencia, Spain

Sep 23rd, 2026 - Sep 26th, 2026
The 6th European Congress Of Medical Physics (ECMP2026)
Valencia, Spain

Sep 23rd, 2026
EFOMP school on Patient Discharge following Molecular Radiotherapy
Valencia, Spain

Oct 5th, 2026 - Oct 9th, 2026
International Symposium on Standards, Applications and Quality Assurance in Medical Radiation Dosimetry (IDOS 2026)
Vienna, Austria

Oct 8th, 2026 - Nov 20th, 2026
Hybrid Courses in the Field of Particle Therapy
Heidelberg, Germany or Online

Oct 28th, 2026 - Oct 30th, 2026
The XII international conference “Medical physics – the current status, problems, the way of development. Innovation technologies”
Kyiv, Ukraine

Oct 29th, 2026 - Oct 31st, 2026
EFOMP School for Stereotactic Body Radiotherapy Cluj, Romania
Cluj, Romania

Feb 4th, 2027 - Feb 6th, 2027
Dosimetry for Radiology, Diagnostic Imaging (CT, Mammography, PET, SPECT, CBCT) / Radiation Therapy
Prague, Czech Republic

Apr 22nd, 2027 - Apr 24th, 2027
School for Theranostics in Nuclear Medicine
Athens, Greece

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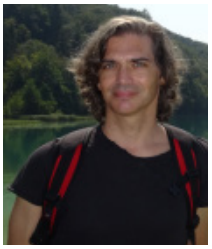
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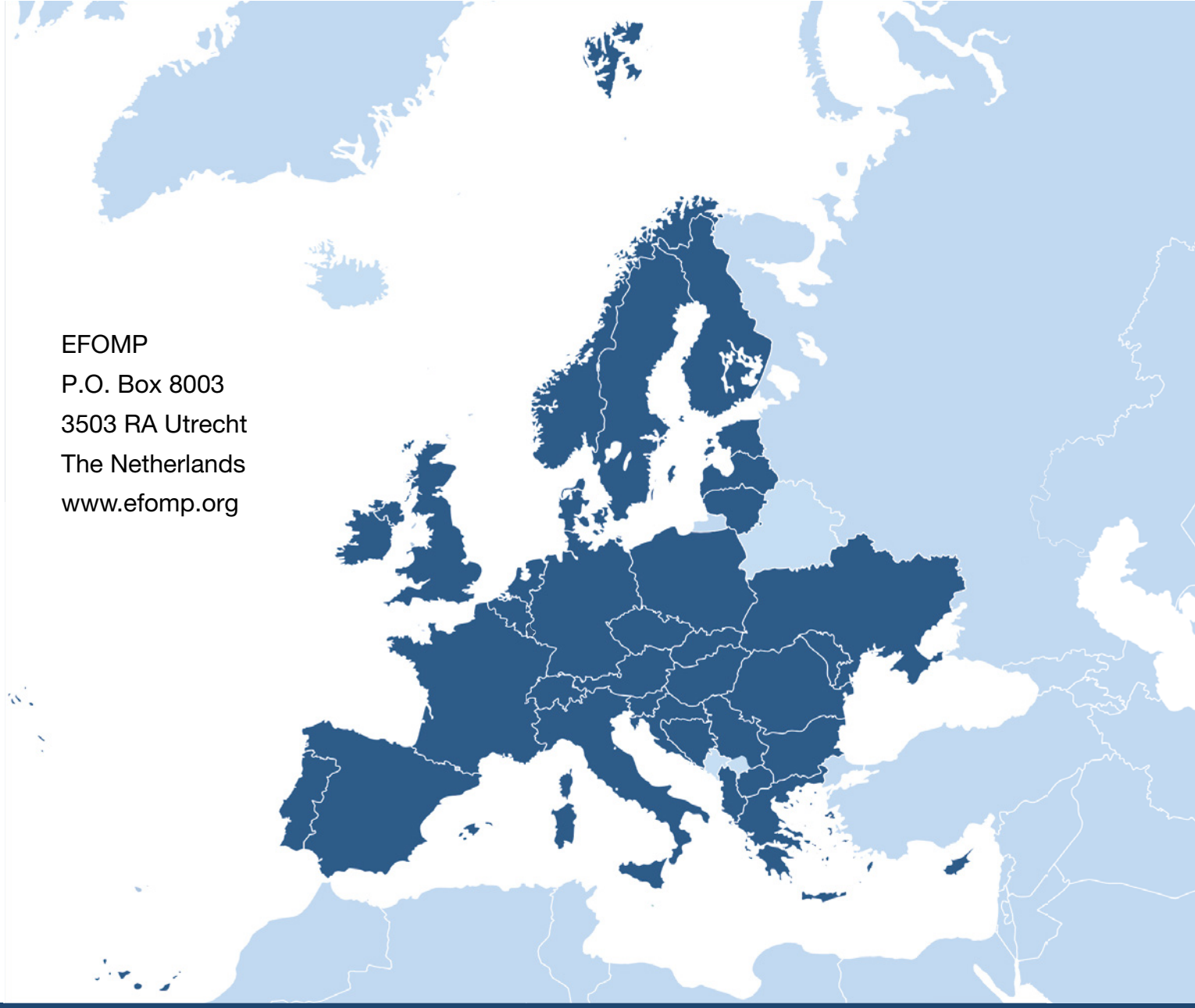
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EFOMP

EUROPEAN FEDERATION OF ORGANIZATIONS FOR MEDICAL PHYSICS

The European Federation of Organisations in Medical Physics (EFOMP) was founded in May 1980 in London to serve as an umbrella organisation for medical physics societies in Europe. The current membership covers 37 national organisations which together represent more than 10.000 medical physicists and clinical engineers working in the field of medical physics. The office moved to Utrecht, the Netherlands, in January 2021.

The motto developed and used by EFOMP to underline the important work of medical physics societies in healthcare is “Applying physics to healthcare for the benefit of patients, staff and public”.

For more news and information about EFOMP activities please follow us on social networks or visit our website

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